The Newspaper of Information Systems Management
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COMPUTERWORLD

WHAT'S INSIDE

Spindler

Amelio

- Apple ousted CEO Michael Spindler in favor of turnaround specialist Gilbert Amelio. **See story, page 2,** *by Tim Ouellette and Stewart Deck.*
- Feeding the wildest fears of electronic commerce, a startup has written demo software that shows users how easy it is to steal credit-card numbers over the Internet. **See story, page 6,** *by Mitch Wagner.*
- There's no free lunch, but there is free voice . . . if you send it over frame relay. See this and other stories from ComNet '96, **pages 14 and 15,** *by Neal Weinberg and Bob Wallace.*

Trouble in the aisles

Financial woes set back tech projects, drain IS staff at Kmart

By Thomas Hoffman

Hard times at Kmart Corp. have forced the struggling discount retailer to ground several high-flying information systems projects, *Computerworld* has learned.

Among the projects on hold are a planned transition from a satellite communications network to a frame-relay scheme at its 2,200 stores and an operating system migration from Unix to Windows NT. Also, Kmart's top IS ranks have been in a state of upheaval for months.

The delays and other troubles come at a tough time for the company, which in recent weeks has been rumored to be close to bankruptcy. Kmart's financial status "is reasonably precarious," said Linda Kristiansen, an analyst at Wertheim Schroder & Co. in New York.

Kmart was once a leading-edge technology showcase — and it is still respected for the pioneering work of its Unix-based Kmart Information Network system in 1987. But the Troy, Mich.-based retailer now finds itself chasing the marketing and technology strategies of retail king Wal-Mart Stores, Inc.

Longtime Chief Information Officer David M. Carlson left the firm in July. Virginia Rago, who was tapped

Kmart, *page 111*

IS exodus

At least 100 members of the Kmart Information Systems group left last fall, after the departure of chief system architect Paul Gaffney, sources close to the firm said. There were about 1,000 IS staffers.

Telco managers dial for reform dollars

By Neal Weinberg
WASHINGTON

Lower prices. More services.

That's what telecommunications managers expect to gain from legislation passed by Congress last week. The sweeping reform bill will let cable operators, local telephone companies and long-distance carriers compete in one another's markets.

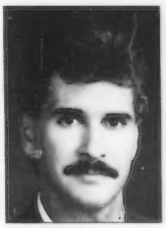
Phone rates could drop 50% or more when the dust settles, Mike Nelson, special assistant for information technology at the White House Office of Science and Technology, predicted at a ComNet '96 session on the legislation.

David Leach, a House Commerce Committee staffer, said

Reform, *page 14*

Users to Novell: It's the network, stupid!

By Laura DiDio


User Thad Hymel: *Novell's money would've been better spent on R&D*

Back to basics.

That's where users hope Novell, Inc. is headed now that the company has unloaded WordPerfect and abandoned a two-year attempt to compete with Microsoft Corp. in the desktop applications arena.

NetWare users, weary of a string of acquisitions followed by sell-offs, layoffs and management shuffles, generally were enthused about the sale of WordPerfect, Novell's Business Applications Group (see related story, page 4).

Most said they are anxious for Novell to refocus on strengthening its core NetWare 4.1 platform. They fear the company otherwise risks ceding its dominance to archrival Microsoft.

"It's 'do or die' time for Novell.

Novell, *page 16*

See me Feel me Touch me Heal me

The future of interfaces includes **wearable systems, Web-like features, 3-D and sound.** And this isn't just blue-sky stuff. Vendors such as Intuit, Microsoft, Sun and AST are attempting to make computing a lot more human.

See In Depth, page 83.

No easy decision on Win 95 vs. NT

By Stuart J. Johnston

Six months after the release of Windows 95, an exclusive *Computerworld* survey shows that when it comes to Win 95 vs. Windows NT Workstation, it isn't an either/or decision.

While one-sixth of the 100 information systems managers surveyed said they will go directly to the turbo-charged Windows NT Workstation on the desktop, the bulk of the respondents plan to migrate first to Windows 95 and then later to NT.

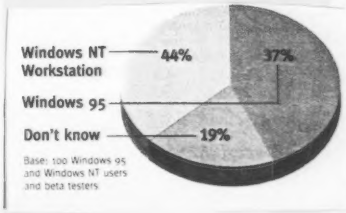
"The majority of users in a corporation don't need NT, and Windows 95 is fine [for them]," said Duncan Davidson, managing partner at Gemini-McKenna, a technology consulting firm in Palo Alto, Calif.

One surprise is that the current perception

Survey, *page 111*

COMPUTERWORLD User Pulse EXCLUSIVE SURVEY

If the choice were up to you, would you deploy Windows NT Workstation or Windows 95 as your organization's primary end-user desktop?



Base: 100 Windows 95 and Windows NT users and beta testers

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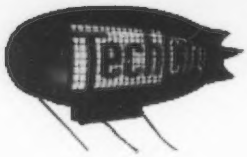

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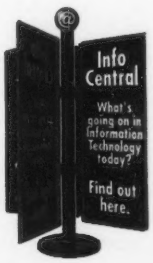

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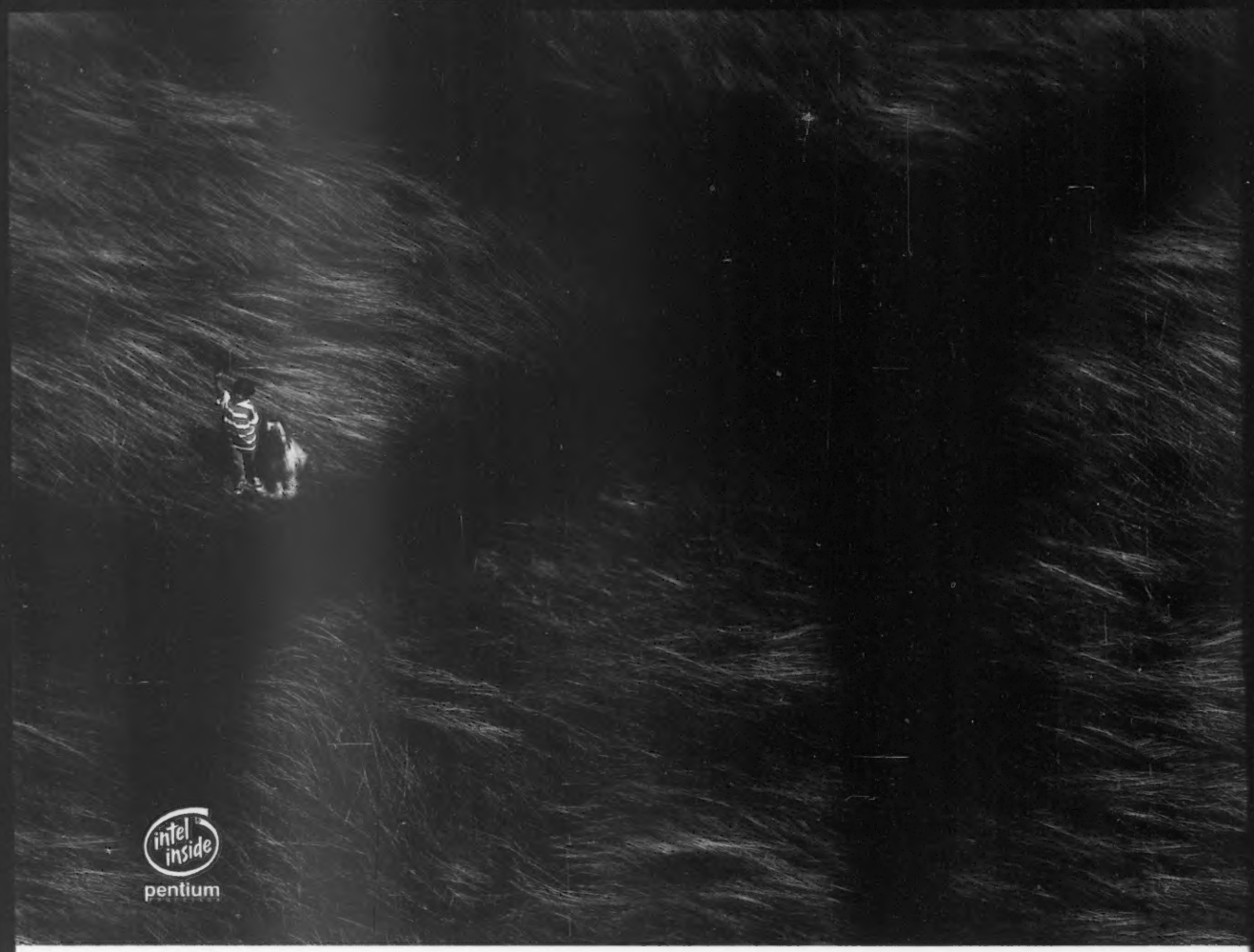

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Feb. 5, 1996

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ALAN LEVENSON

Choice Cuts

Flying high: *1,000 men and women formed the IS team for Boeing's 777 project. By focusing on the internal customer, they earned new respect.* **See Managing, page 66.**

Surfing in the wrong place *could cost you your job. Employers crack down on 'net abuse.* **See The Internet, page 55.**

DAVID JOEL

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Bizarre Web sites

Compiled by Mitch Wagner and Mitch Betts

Fans of the TV sitcom *Gilligan's Island* can gather at their own tropic isle of a home page at http://www.lookup.com/Homepages/58181/home.html. No doubt the professor put it together using coconuts and palm leaves, with Gilligan providing the uninterruptible power supply by pedaling away on a bamboo stationary bike. The lingering question is, who was dreamier: Ginger or Mary Ann?

The decade's twin fads — body piercing and the Internet — come together in a Web game called "Piercing Mildred." Players perform "exotic piercings and flesh ornamentation" on a cartoon character, ward off infections and try to win the "Freak of the Week" contest. The address is http://streams.com/brian/.

Never let it be said the Web isn't an education tool. You can learn the proper techniques for playing the Philson Stratoblaster Air Guitar from R. "Bud" Philson at the Easy Air Guitar page, http://www.digitalrag.com/mirror/air.html. There are photos of the standard air-guitar leap and instructions on "simple chords and fingering" for the beginner.

On the Web, of course, one link leads to another. The Useless Pages site at http://www.primus.com/staff/paulp/useless.html leads to the intriguing Museum of Dirt. At http://www.planet.com/dirtweb/dirt.html, you can see vials of dirt collected from Robert Redford's Sundance Ranch in Utah and from left field at the *Field of Dreams* film site in Dyersville, Iowa.

The Web is starting to look like the bottom row on TV's *Hollywood Squares*. David Cassidy, who played Keith Partridge on the *Partridge Family*, has a home page for his fans at http:/www.algonet.se/cassidy. Likewise, the most recently departed member of the Rat Pack, Dino Paul "Dean Martin" Crocetti, has a memorial Web page at http://www.primenet.com/drbmbay/. Noted '70s spoon-bender/psychic Uri Geller has a Web page at http://www.urigeller.com. We'll take Paul Lynde to block.

A "Spamtastic" gift catalog is available for perusing at http://wolf.co.net/spamgift/catalog.html. The products — all featuring the canned meat product Spam from Hormel Foods — include T-shirts, mouse pads and boxer shorts. You can also stock your pantry by ordering the Spam Variety Pack.

When Java was just percolating . . .

Java doesn't stand for Just Another Vague Acronym, according to *Hooked on Java*, the book written by three members of Sun Microsystems' Java development team — Arthur van Hoff, Sami Shaio and Orca Starbuck. They say the language for creating lively Web sites was named during a trip to a local coffee shop after the group decided the original project name, Oak, wasn't a marketing plus.

■ **Send contributions of off-beat news, lists and anecdotes to mbetts@cw.com.**

Philip Zimmermann

Philip Zimmermann, author of the popular encryption program Pretty Good Privacy, recently was spotted shaking hands with archenemy Clint Brooks, the National Security Agency's point man for government-regulated encryption. It seems Brooks was congratulating Zimmermann after the government dropped charges that Zimmerman violated export laws by posting Pretty Good Privacy on the Internet.

"How do you feel?" Brooks asked.

"Pretty damn good," Zimmermann said.

— Gary H. Anthes

Human Factors

Americans' continuing love/hate relationship with computer technology is apparent in a new consumer poll conducted by Northlich Tolley LaWarre, a Cincinnati-based communications agency, and Techtel, a San Francisco-based market research firm.

On one hand, 43% of U.S. adults would rather spend an hour using a PC than an hour watching TV, and 28% sometimes prefer to deal with a computer instead of a real person.

But there is a substantial minority population of technophobes. In the national survey, 17% of the consumers say they "sometimes feel that their computer is out to get them." The 1995 survey of 1,000 U.S. households has a 3% margin of error.

The survey also highlights the sorry state of "user-friendliness." Nearly one-third (31%) of the respondents say they spend more time figuring out how to use a computer than actually using it.

The poll demonstrates that many Americans still hold computers in great awe. Some 21% agree that "computers really could take over the world," and 36% agree that 100 computers could solve our country's problems better than 100 politicians.

Top 10 layoff announcements in the computer industry from January 1993 to January 1996

Date	Company	Number of people to be laid off
July 1993	IBM	63,000
May 1994	Digital	20,000
November 1993	NCR	7,500
March 1993	Wang	3,300
April 1993	Digital	3,200
July 1993	Apple	2,500
November 1995	Novell	1,750
November 1995	Storage Technology	1,500
January 1994	Electronic Data Systems	1,358
January 1996	Apple	1,300

Source: Challenger, Gray & Christmas, Inc., Chicago

CEO Spindler gets das boot

By Tim Ouellette and Stewart Deck

Last week was climactic for the popular industry saga "As the Apple Turns."

Published reports that CEO Michael Spindler was ousted Friday in favor of a turnaround specialist — National Semiconductor, Inc. CEO Gilbert Amelio — were expected to quash any plans to sell out to Sun Microsystems, Inc. in Mountain View, Calif. Amelio reportedly likes to turn companies around, not sell them.

National Semiconductor confirmed Amelio's departure, but Apple officials declined comment at press time.

Analysts predicted the Cupertino, Calif.-based company will have to finally abandon its flimsy strategy for corporate users and focus on the home, graphics and education markets that are its strengths.

Months of buffeting rumors left some Apple users philosophical.

"Apple is in trouble no matter what they do now, short of merging with someone else," said Robert Anderson, a longtime Macintosh supporter at A. O. Smith Automotive Products in Farmington Hills, Mich.

He said the description of Amelio as a no-nonsense cost-cutter sounded very familiar. "That's the same thing we heard about Spindler when he came in two years ago, and basically he was the right man for the job," Anderson said.

Not a surprise

The Spindler ouster "doesn't really affect the issues we've been talking about," said Stephen Priest, director of computer services at Dartmouth-Hitchcock Medical Center in Lebanon, N.H. "But if the change does something positive, we are hoping it encourages systems developers to develop for the Macintosh platform," he said.

Spindler's departure wasn't unexpected. Apple's board yielded to pressure from Apple's dealer council and field salespeople, an analyst said.

"There was a [perceived] lack of leadership, and the big question of whether Apple had a future was starting to seriously impact sales," said Tim Bajarin, president of Creative Strategies Research International, Inc. in San Jose, Calif.

Bajarin said Spindler had made the right restructuring moves. But Bajarin said he believes Spindler's mismanagement virtually negated those moves.

Another industry source agreed, noting that many people said they believed Apple was plagued more by the decision years ago not to license its operating system than by Spindler's lack of execution.

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WordPerfect users say 'show me' to Corel

Customer loyalty is still holding steady

By Lisa Picarille

Most users of WordPerfect and PerfectOffice are breathing a sigh of relief that Novell, Inc. has finally sold off its Business Applications Group.

But many users are crossing their fingers, hoping that Corel Corp. will devote the necessary attention to the products.

"I'm glad it's over," said Gary Wilkerson, supervisor of end-user services at Kaiser Permanente Health Plan, Inc. in Atlanta, which has 1,400 copies of PerfectOffice. "But there is [the] question of Corel being able to follow through and make the products successful."

Despite some fears about the Canadian graphics giant's ability to compete in a business software market dominated by Microsoft Corp., more than a half-dozen WordPerfect users interviewed last week said they wouldn't abandon the products.

"It's like a cloud has been lifted, and we can get on with being WordPerfect users instead of wondering what's going to happen," said Brian Peabody, director of end-user computing at Prime Consulting Group, Inc. in Norcross, Ga. He said the firm plans to stick with its dozen copies of WordPerfect and PerfectOffice.

Even if Corel can't follow through, Amy Jaffke, information systems administrator at the Emergency Operations Center for Los Angeles County, said, "Our investment is too large to even think about switching."

Users aren't the only ones adopting a show-me stance. "Corel is very dramatically broadening its agenda with this deal," said Jeff Silverstein, editor of "The Software Industry Bulletin," an industry newsletter in Stamford, Conn. "It will be interesting to see if they can make a business out of trying to revive WordPerfect."

Corel is spending about $125 million in cash and stocks to buy WordPerfect — and will pay another $70 million in licensing fees to Novell over the next five years — to beef up its software portfolio. The acquisition makes Corel, with revenue of $200 million, the second-largest software maker after Microsoft.

Much work ahead

Corel will have its work cut out for it, given that WordPerfect's market share has eroded to 5% of the overall word processing market, Silverstein said. Novell claims WordPerfect has a 50% share of sales for stand-alone word processors. But he said close to 90% of word processors are purchased as part of a suite, and Microsoft owns the suite arena with upwards of a 90% market share.

But another industry watcher said Corel can gain some ground.

"Corel is one of the few companies with the marketing pizzazz to win new customers," said Jeff Tarter, editor of "Softletter," an industry newsletter in Watertown, Mass. "They are going to figure out imaginative marketing and pricing that will make this look like a hot product line. WordPerfect and Novell were never able to do that."

But not all users are happy about the deal.

"We are worried about our existing support agreements and would prefer to deal with fewer, not more, vendors," said Frank DeVito, manager of information systems at Rogers & Wells. The New York law firm has 1,000 copies of WordPerfect and also uses Novell's GroupWise and NetWare products.

Senior editor Laura DiDio contributed to this report.

A penny spent . . .

Novell spent $1B in June 1994 to get into the desktop applications market: $855M for WordPerfect and $145M for Borland's Quattro Pro spreadsheet. Last week, Novell sold off all of that to Corel for $180M.

What Corel got for its $180M

- WordPerfect Office
- A five-year license for the client version of Novell's GroupWise and a license for Envoy
- A foothold in the desktop applications market

What Novell got out of the sale

- 9.95 million shares of Corel common stock, valued at $113 million
- $10.75M (cash)
- Minimum licensing royalties of $70M over the next five years for GroupWise and Envoy

Novell makes Tuxedo a hand-me-down

By Craig Stedman

Formalware is apparently going out of style at Novell, Inc.

In addition to ridding itself of WordPerfect, Novell is shedding most of its Tuxedo transaction monitor business to a West Coast start-up. Novell still owns Tuxedo but will integrate the middleware code only with NetWare from now on.

Transaction monitoring

BEA Systems, Inc. in Sunnyvale, Calif., will take over development of Tuxedo for Unix and Windows NT under an exclusive license from Novell.

Users said Tuxedo was facing an uncertain future as Novell circled its wagons around NetWare and refocused on its core networking business.

"Tuxedo really needs to find somebody that can position it better against other middleware products" that aren't weighed down by the mainframe baggage that transaction monitors carry, said Sid Huang, president of Interactive Telephone Co. in Hackensack, N.J.

"I always wondered where it fit in their plans," Huang added. Interactive Telephone uses Tuxedo to route transactions that authorize and bill telephone calls that are made with calling cards it markets.

Tuxedo pocketed 35% of the Unix transaction software market last year, more than twice the share of any rival product, according to The Standish Group International, Inc. in Dennis, Mass. But Novell got only about $20 million in revenue after its distributors took their cuts.

Huang and others said Tuxedo may be better off in the hands of a company such as BEA, which is building its business around the software. About 50 of the 60 Tuxedo employees at Novell are transferring to BEA. The start-up also has acquired the two biggest Tuxedo distributors — Information Management Co. in Edison, N.J., and Independence Technologies, Inc. in Fremont, Calif.

Cleaner organization

Those companies had Tuxedo source code licenses and did porting on their own. But it wasn't always in sync with Novell's work. "It's all going to be in one organization now, and that's a lot cleaner," said Michael Prince, director of information systems at Burlington Coat Factory Warehouse Corp. in Burlington, N.J.

However, Prince added that the transition from a major vendor to a start-up is a comedown for Tuxedo's image, especially because the software already transferred from AT&T Corp. to Novell. "There's been a continued diminishing of the brightness of the star" behind Tuxedo, he said.

BEA will release a roadmap for future Tuxedo development within 90 days. William Coleman, BEA's chairman, said he expects to continue on the track that Novell set toward the next major release, code named Matador and due out in 1997. BEA also wants to improve integration between Tuxedo and IBM's CICS and IMS mainframe transaction monitors, Coleman added.

While Novell will still own Tuxedo, BEA can do "as they see fit" with the code, said Michael DeFazio, a senior vice president at Novell. That could lead to differences between BEA's version and the NetWare release that Novell is developing, but DeFazio said a bipartisan architecture team will ensure that the two products are at least compatible.

Still on staff

Novell is retaining about 10 Tuxedo engineers to deliver a promised NetWare version plus integration with NetWare Directory Services and the Internet. The NetWare release, called NetWare Transactions, is due by midyear, while the other pieces should follow in 1997.

GroupWise stays in Novell's hands

By Tim Ouellette

In a nod to the Internet, Novell, Inc. has added Web access to GroupWise — the one chunk of WordPerfect that the Provo, Utah, firm hung on to in last week's fire sale to Corel Corp.

Novell CEO Robert Frankenberg said the company retained the GroupWise message-based collaboration and calendaring software because sales are strong and the groupware market as a whole is pretty hot. He made it clear that despite the sale of WordPerfect (see related story above), GroupWise would remain a major part of Novell's networking and Internet strategies.

He said users can expect Novell to accelerate its efforts in groupware development, especially in terms of finalizing and delivering GroupWise XTD, its next-generation messaging and groupware product. Novell lags behind Lotus Development Corp. and Microsoft Corp., which already offer full client/server groupware and messaging systems.

GroupWise users were glad to hear there would be more focus on the product.

"I have never been a big fan of WordPerfect," said David Janiszewski, manager of office automation at Nordic Track in Chaska, Minn. "But we really want to get a look at an early release of GroupWise XTD soon."

Meanwhile, PerfectOffice users have Corel's promise that some GroupWise technology will be built in to the application suite. Corel bought a five-year license to GroupWise technology from Novell. Frankenberg said Corel also may help Novell add features to GroupWise, such as real-time video communication.

Access from Web

For users with Internet plans, GroupWise WebAccess lets end users access their GroupWise mail messages, calendars and task lists from a World Wide Web browser. The software is due by midyear. Lotus Development Corp. has already added this feature to its CC:Mail messaging software.

"We could make hay on this," said Frank Manci, document imaging coordinator at Colonial Savings, a mortgage and loan firm in Fort Worth, Texas. "We have a lot of outside users and branches across the U.S., and this would be more efficient than anything we have here."

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Parallel Index Software	☑	☐
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On-line security a pipe dream?

Demo program highlights ease of credit information theft

By Mitch Wagner

An Internet commerce company has written key elements of a software program that snatches credit-card numbers from on-line traffic. The firm wrote the program to demonstrate that securing on-line credit-card transactions may be impossible.

First Virtual Holdings, Inc. in San Diego developed the software, which runs on any version of Windows. It monitors a user's keystrokes, captures credit-card numbers as soon as they are typed in and sets off an alarm.

If Internet commerce via credit cards becomes common, a criminal could spread a program similar to First Virtual's throughout the U.S. The criminal could trick users into putting it on their systems or attach the program to a computer virus. But instead of setting off an alarm, a malicious version of the program could pass the stolen credit-card numbers back to the criminal, using the same connection that the computer's legitimate owner uses to conduct Internet commerce.

"You could collect millions of credit-card numbers this way," said Nathaniel Borenstein, chief scientist at First Virtual.

If Internet commerce using credit cards were to become widespread, an attack could even rock the economy, causing legions of credit-card defaults at once.

Ulterior motive

First Virtual has a lot to gain by spreading this news. The company makes a program for Internet payments that doesn't require credit-card numbers. Consumers and merchants set up an account with First Virtual off-line and conduct transactions by exchanging coded phrases and keywords.

The First Virtual scheme for credit-card theft bypasses Internet protocols and application specifics. It would leave vulnerable any application that relies on a user typing in a credit-card number, including the servers and clients produced by Netscape Communications Corp. and Internet commerce software from Open Market, Inc. and CyberCash, Inc.

Gene Spafford, a computer security expert at Purdue University in West Lafayette, Ind., said the software exposes some very old, but little-known, security flaws in the Internet. "Most of the discussions that people are having about securing electronic commerce are about using armored cars to transfer the day's receipts from a park bench to a cardboard box on the beach," he said.

Richard Quinter, director of information systems at FirstLine Trust Co., a Toronto finance firm, agreed that plucking credit-card numbers from the Internet "is the easiest thing in the world to do." He said when he was a computer science undergraduate, he and his classmates used similar software to steal one another's passwords and play pranks.

The chaotic firewall market may get some standards. See page 51.

Low-budget computer crime

How someone could steal credit-card numbers off the Internet using off-the-shelf technology

- Write software that will capture keystrokes from a keyboard and analyze patterns to detect credit-card numbers.
- Place the software on computers nationwide. This can be done by embedding it in a computer virus, which can spread quickly, as the popular Michelangelo or Monkey viruses did.
- Or you can put it in a so-called Trojan horse, tell users it's a game or a utility, and they'll install it for you.
- By the time users realize they've been tricked, it'll be too late.
- When the user types in a credit-card number, the software captures it.
- Most likely, the user who inputs a credit-card number has on-line access. When the user goes onto the Internet, the software interacts with the standard Internet software and transmits the stolen credit-card number.
- The credit-card numbers get sent to a safe place, maybe an E-mail account that you've broken in to, or hidden in plain sight and encrypted in a Usenet newsgroup where only you know to find it.
- Collect your credit-card numbers and retire to a tropical island with no extradition laws with the U.S.

Source: First Virtual Holdings, Inc., San Diego

AIIM seeks paper mail safeguards for E-mail

By Suruchi Mohan

A new standards effort that will get under way next month will give the transmission of electronic documents some of the same protection that paper mail gets traveling through the U.S. post office.

At the Digital Document Conference last week in San Francisco, the Association for Information and Image Management (AIIM) announced it will launch the "Reliability of Business Information" initiative on March 1.

Standards

The group in Silver Spring, Md., has the goal of binding the metadata about a document to the actual document. Metadata is data about other data, similar to the information on an envelope. For example, the metadata about electronic mail would describe who sent the message, to whom, when it was sent and when it was received.

By making this metadata an integral part of an E-mail or electronic document, companies could be assured their electronic data wasn't subject to tampering. The metadata then could be used reliably in court or in important transactions among corporations.

Electronic documents already can be admitted in a court of law, but AIIM wants to take the next step and make sure the authenticity is unquestionable.

"What do we have to do to make [documents] trustworthy so our records will win a case for us?" said Dan Schneider, computer specialist at the U.S. Department of Justice in Washington and co-chairman of one of AIIM's standards committees.

Trustworthiness is the key to making sure electronic documents aren't forgeries, users and analysts said. "As we get electronic, how do you tell [if a document] was sent by somebody whose name appears on the bottom or [if it was] changed along the way? How do I know the time stamp wasn't altered?" asked Charlie Plesums, principal consultant at The Continuum Co., an insurance services firm in Austin, Texas.

Electronic data interchange among trusted business partners is commonplace, but the integrity issue arises when a company wants to exchange data with other trading partners, many of whom are unknown, said Rik Drummond, president of Drummond Group, Inc. in Fort Worth, Texas.

Companies that seek to conduct business electronically will "have to be able to say [data] was protected in such a way that it was not modifiable in transit or in storage," said Charles Cresson Wood, an independent consultant at Information Integrity Investments, Inc. in Sausalito, Calif.

Several E-mail security standards take care of some of the issues raised by AIIM. For example, the ITU's X.509 E-mail certification standard ensures nonrepudiation. This means a sender can't claim he didn't send a message that is traced to him.

But issues such as the time stamp and the modification of stored data still need to be addressed. The AIIM effort is directed at plugging that gap. Schneider said AIIM will take care that its new specifications will mesh with existing standards.

But the initiative won't be without challenges, said Kevin Vaughn, vice president of advanced technology at Harper-Collins Publishers, Inc. in San Francisco and co-chairman of the standards committee. For example, "how will you find out if somebody has tampered with the [computer] system clock to change the time stamp?"

Genie owner offers good and bad news

By Mitch Wagner

The new owner of the Genie on-line service last week launched a nationwide program for dial-up Internet access priced dirt cheap. The service will have a flat rate of $29 per month and no hourly dial-up charges.

That was the good news.

The bad news for those in Genie's dwindling customer base was that if they want to continue accessing the proprietary on-line service without accessing the Internet, it will cost many of them more than double what they paid before. The minimum monthly charge jumped from $8.95 to $18.95 per month — $23.95 for new users. That makes Genie far more expensive for light users than CompuServe, America On-line or Prodigy.

Heading for the Web

The new owner, Yovelle Renaissance Corp. in New York, plans to move the content of the on-line service off of its proprietary software and onto the World Wide Web.

The company has contracted Internet service provider IDT in Hackensack, N.J., to provide connectivity and engineering for the transition.

The decision by Genie puts the on-line service ahead of the competition, a position that it has grown unaccustomed to over the years.

Cheapest of the bunch

Genie's competitors at AOL, CompuServe and Prodigy already offer Internet access, but Genie's Internet access just might be the most inexpensive package offered by a national service provider. Many on-line services, including all the major players, also have announced plans to move their content onto the Web.

However, the Internet gains may come at the price of losing substantial numbers of Genie's customers, many of whom seem likely to quit — some of them quite angrily.

The company gave less than five hours' notice that it was raising its rates, and customers who didn't log on for a few days at the beginning of this month could find themselves billed at the new, higher rate without being given an option to quit first.

IBM buys Tivoli

Pays $743 million for $50 million middleware maker

By Bob Francis and Patrick Dryden

IBM answered lingering questions about its commitment to a distributed systems management strategy last week by laying down a cool $743 million to purchase Tivoli Systems, Inc.

The deal should give Big Blue shops a clearer vision of how IBM plans to implement distributed systems management. IBM promised distributed systems management tools for some time with SystemView but stumbled badly in its attempt, analysts said.

Systems management

Tivoli in Austin, Texas, may give IBM a much-needed entree with customers who are headed for distributed computing. IBM also will obtain proven systems management tools, high-profile customers such as Charles Schwab & Co. and GTE Data Services and links with independent software vendors and OEMs.

The move makes great sense to IBM users, many of whom are moving to distributed platforms.

"We're just in the process of moving some of our applications off an IBM mainframe to Unix systems," said Stephen O'Pry, information systems manager at Montell USA, Inc., a chemical manufacturer in Wilmington, Del.

The company chose Tivoli for its distributed systems management. "For us, it's all the better if they work together because IBM certainly understands the mainframe environment," he said.

Tivoli users hope IBM's backing won't dilute Tivoli's systems management innovation.

"Tivoli succeeded in building bridges among vendors with [Tivoli Management Environment]. We hope that will continue now," said Dave Kessell, vice president of infrastructure projects at Charles Schwab, a Tivoli user in San Francisco.

"It's absolutely critical to us that all these vendors cooperate so we won't have to do so much integration of management tools ourselves," he said.

Tricky mix

IBM's largest challenge may be to maintain relations with Tivoli's independent software vendors, such as Oracle Corp. and Sybase, Inc., and OEMs such as Digital Equipment Corp. That is because these companies compete with other IBM business units, said Brandon Musler, an analyst at Illuminata, Inc., a research company in Nashua, N.H.

To maintain those delicate relationships, IBM is giving Tivoli the same makeover it gave Lotus Development Corp., which it acquired last June.

Tivoli will become an autonomous unit of IBM that will be run from Austin by Tivoli CEO Frank Moss. Moss, a former IBM and Lotus executive, will be handed the reins of IBM's existing systems management software business.

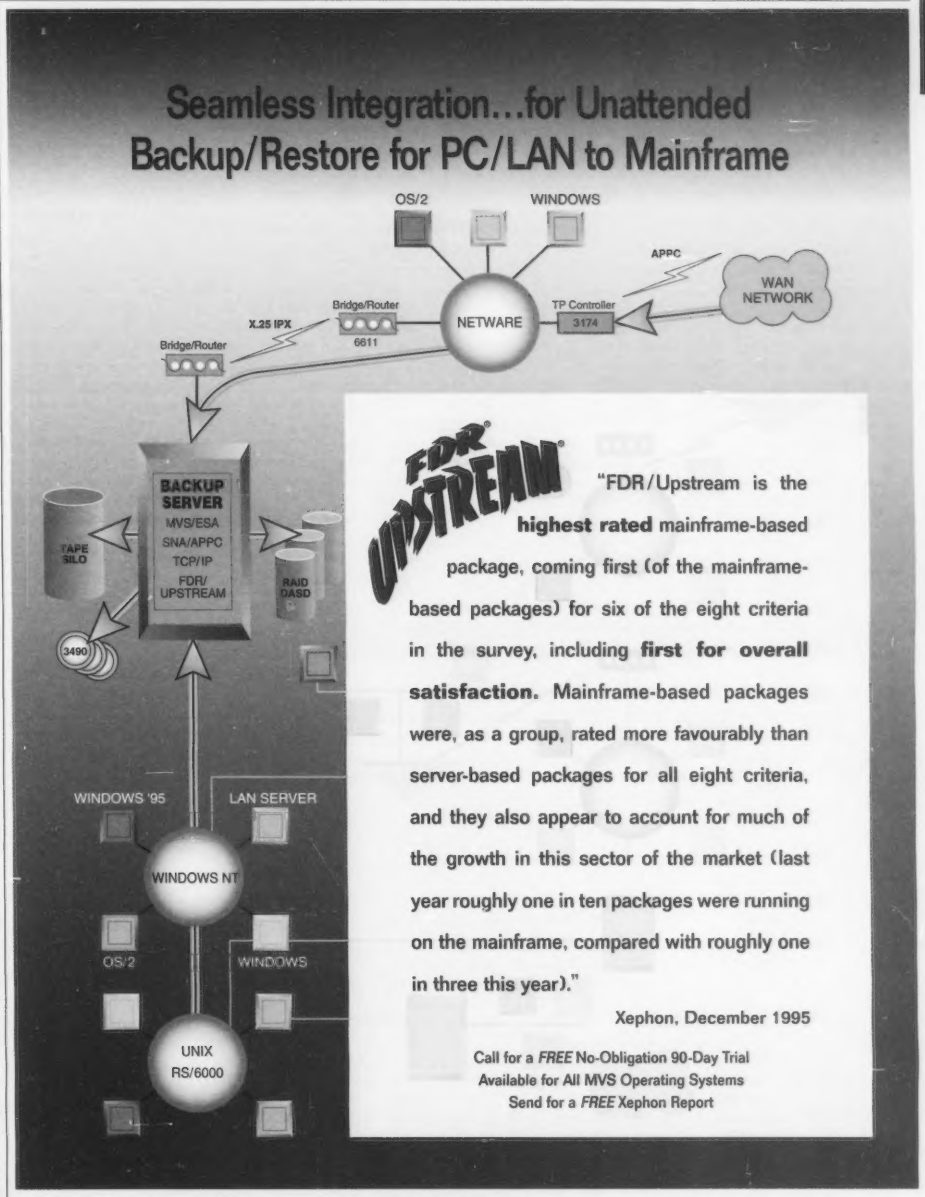
IBM paid well for the privilege of owning Tivoli. Tivoli earned $5.5 million last year on sales of $49.6 million; IBM paid about 15 times the company's revenue.

Lotus was purchased for about 3½ times its revenue. However, where IBM paid a 100% premium for Lotus, it is paying only about 25% more than Tivoli's stock price. In any case, the purchase won't empty IBM's coffers; the company's bank bulged with $7.7 billion in cash at the end of last year.

Some systems and network management vendors said they often find themselves competing and cooperating with Tivoli.

"We both work with Tivoli and compete against them on some deals, so I don't think this will do anything but legitimize the market we're in," said Rick Kreysar, marketing manager at McAfee Associates, Inc., a network management company in Santa Clara, Calif.

McAfee and Tivoli recently shared an investment in an Internet software provider. But at the same time, they also knocked heads on a deal with a large customer.



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DB2 gets first piece of Visual Basic clone

By Frank Hayes

IBM has begun widespread testing of a tool set that will let users of its DB2 relational database create stored procedures written in Basic. The stored procedures can be invoked by Microsoft Corp.'s Visual Basic.

The tool set, known as DataBasic, makes it much easier for database administrators and developers to create DB2 stored procedures. Those procedures are sections of code that manipulate data but reside on a database server instead of being part of an application.

DataBasic is the first product of IBM's long-delayed project, codenamed Bart, to develop a clone of the Visual Basic application development environment.

By moving that business logic to the database server, large tables of data don't have to be sent across a network for processing. Stored procedures also make it easier to maintain standard routines that implement business rules.

DataBasic works with versions of DB2 for OS/2 and AIX, IBM's variant of Unix. Database administrators can create stored procedures in ANSI-standard Basic, test them locally on a Windows 3.1, OS/2 or AIX Unix workstation, and then upload the procedures and test them on OS/2- or AIX-based DB2 servers.

Stored procedures, widely used on relational databases from rival vendors such as Sybase, Inc., Oracle Corp. and Informix Software, Inc., are less popular at DB2 sites.

"Not a lot of people are using stored procedures in the DB2 world," said Jon Nelson, a senior technical specialist at Blue Cross/Blue Shield of Minnesota in St. Paul. "Our production applications use Rexx programs to get database access."

Application development

The tool set supports local testing as part of an integrated graphical development environment, said Hershel Harris, development manager at the IBM Toronto Labs.

Developers who wish to join the open beta test can register for the program at IBM's software site on the World Wide Web at http://www.software.ibm.com/data/db2/databasic. A formal release date hasn't been set.

A new product generates multitiered applications from database structures. See page 48.

Friendly C++ promised

Powersoft sets visual programming aid

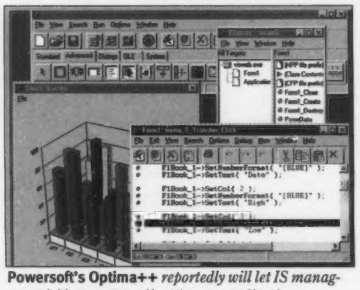
By Frank Hayes

Can C++ really be friendly enough for corporate developers? That is the hope of Powersoft Corp., which this week plans to unveil a PowerBuilder-like environment for developing C++ applications.

Optima++, the new visual programming system, will let developers drag and drop visual components into place with a mouse and quickly prototype client/server applications. But unlike Visual Basic from Microsoft Corp. or Powersoft's own PowerBuilder, Optima++ uses industry-standard C++ instead of a proprietary scripting language.

Although C++ is used widely among independent software vendors, it has the reputation of being too arcane and time-consuming for most corporate applications.

"If you're working in a corporation, you've got your deadlines," said Chris Kwiecinski, senior systems developer at Nabisco, Inc. in Parsippany, N.J., who tested Optima++. "This tool lets you develop a prototype quickly, and then you can build it in Optima++ too, so you're not losing any time."



Powersoft's Optima++ *reportedly will let IS managers quickly prototype client/server applications*

Developers can drag prebuilt Optima++ visual components into place on screens or use OLE control components from third-party vendors. In either case, they can either write C++ code to connect the component to the application or use an interactive help system to automatically generate code.

That sets Optima++ apart from leading C++ development systems from Microsoft and Borland International, Inc. Those systems were designed primarily for writing C++ code by the line.

Optima++ also lets developers crib some visual components from PowerBuilder applications.

Optima++, which will ship by the end of April, runs under Windows 95 and Windows NT. Optima++ applications also can run under Windows 3.1 using the Win32s add-on from Microsoft. Pricing hasn't been set.

Current visual fourth-generation language users who have seen Optima++ said they like the ability to get up to speed quickly with C++.

"The main problem with a lot of people using C++ is that learning curve," said Gregg Britton, a Visual Basic programmer at Solution Technologies, Inc., a consulting firm in Camp Hill, Pa. "With Optima++, you don't even have to write the code."

But Dave Kelly, an analyst at Hurwitz Consulting Group in Newton, Mass., has his doubts.

"It takes some getting used to, and you've still got to know C++ and get down and dirty with your code," he said.

Put your mainframe on the Web. See page 58.

News Shorts

MasterCard, Visa to team on Internet standards

MasterCard International, Inc. and **Visa International, Inc.** said last week they will jointly develop standards for secure exchange of credit-card information over the Internet. The Secure Electronic Transactions standards will be in commercial use by the fourth quarter. The two companies had been headed in different directions, with MasterCard teamed with Netscape Communications Corp. and Visa with Microsoft Corp. The standards will appear in Netscape and Microsoft Internet browsers and in electronic commerce software from other vendors.

Sun plans Java chips for 1997

Sun Microsystems, Inc. is developing a line of low-cost microprocessors geared solely to running applications based on Java. The chips use Java byte code rather than Sun's SPARC architecture, and they won't support general-purpose operating systems. The first of the Java processors will be targeted at embedded uses when it ships in early 1997, but a higher-end version due late that year is aimed at multimedia and three-dimensional graphics.

SAP CEO bails out, heads to Business@Web start-up

SAP America, Inc. CEO and President Klause Besier resigned last week to become CEO and chairman of **Business@Web**, effective Feb. 19. Business@Web, a spin-off of Cambridge Technology Group, is a business application development company in Cambridge, Mass. Besier had headed up SAP America since its 1992 debut in the U.S.

Norton for NetWare nixed

Symantec Corp. is dropping its Norton Enterprise Backup for NetWare but will offer technical support for the next 12 months. Symantec may integrate one of the larger backup vendor packages into its management suite, the company said.

Jasmine, Jade stand alone

Computer Associates International, Inc. in Islandia, N.Y., last week announced Jasmine, an object-oriented database management system, and Jade, an application development environment. Both were jointly developed with Fujitsu Ltd. CA is the only major database vendor to release a stand-alone object-oriented DBMS rather than merge relational and object technology in a single product.

StorageTek wins patent flap

A federal court jury in Virginia ruled last Thursday that **Storage Technology Corp.**'s market-leading tape libraries didn't infringe on a patent held by **Odetics Corp.** The decision followed a trial that started Jan. 22. Still pending is a separate suit related to StorageTek's cartridge loading ports.

Meta beta 4.0 for Windows NT

Microsoft said Windows NT 4.0 will enter widespread beta testing this week with 120,000 users. NT 4.0 adds the Windows 95 user interface to NT. Additionally, the second NT 4.0 beta, due in March, will have support for Network OLE, as the company had earlier hoped, a Microsoft spokeswoman said.

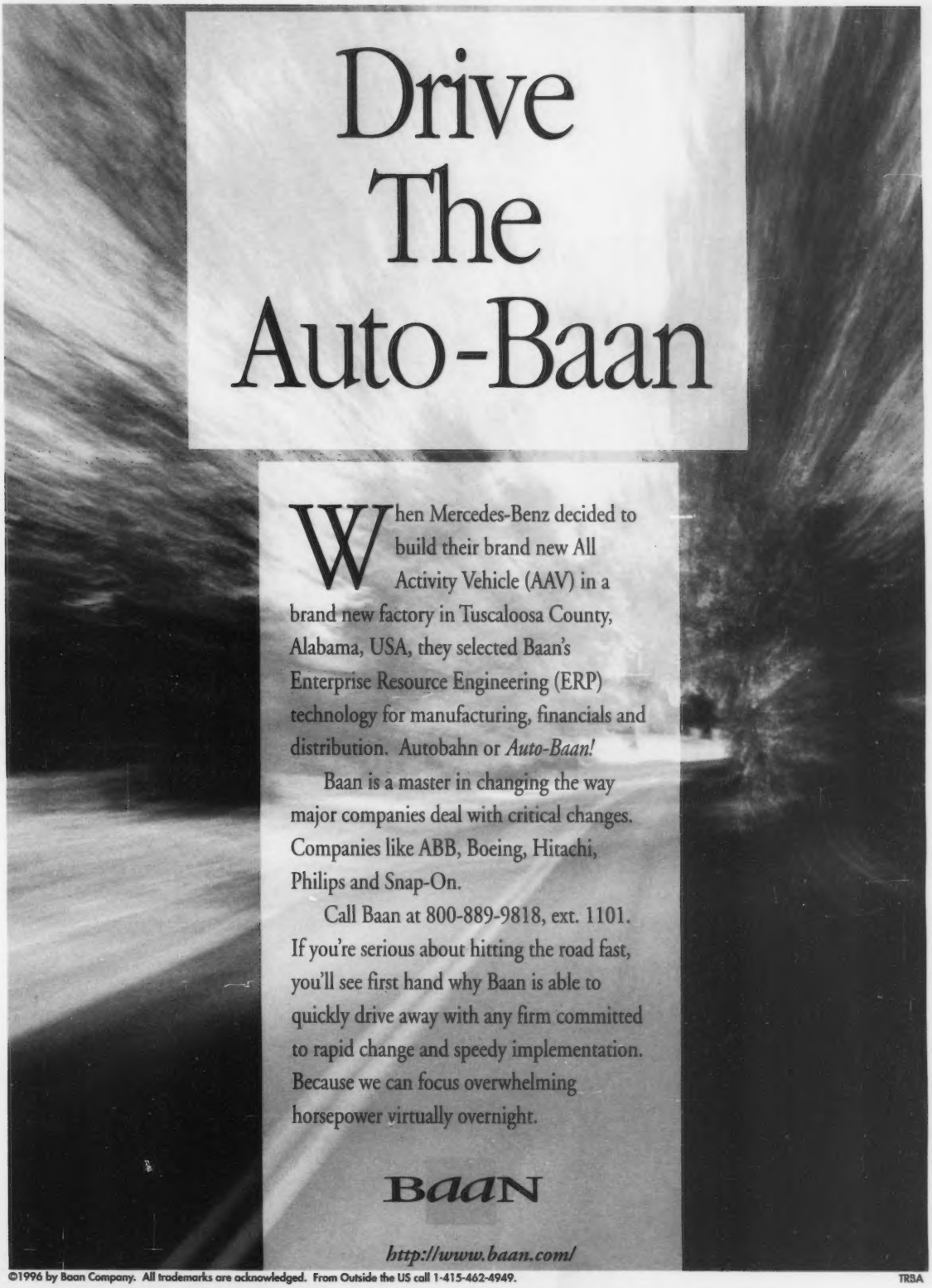
HP tops off midrange line

Hewlett-Packard Co. this week is adding two new models to the top of its HP 9000 K class midrange server line. The K220 and K420 provide a 25% boost in transaction processing power through the use of expanded on-chip caches. Prices start at $51,120 for the K220 and $73,020 for the K420, HP said. Also, the number of processors supported by the high-end T520 server is being increased, from 12 to 14.

IBM to unveil OS/390; users may see savings

IBM's four server units are ganging up to make a group announcement on Feb. 20. Included will be the formal introduction of OS/390, which bundles IBM's MVS operating system with supporting software that previously had to be bought and installed separately. OS/390 is supposed to reduce pricing by up to 25% for large mainframe shops.

SHORT TAKES **Next Software, Inc.** in Redwood City, Calif., is shipping WebObjects, a system for creating World Wide Web server applications that access legacy data.... **Compuware Corp.** in Farmington Hills, Mich., has rolled out FaultXpert, a client/server version of the company's mainframe Abend-Aid product.



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TRBA

Notebook prices continue to free-fall

By Mindy Blodgett

Notebook users will continue to see prices fall in the first and second quarters as vendors flood the market with new releases that also sport faster chips, industry analysts said.

"A lot of corporate buyers ... read about how components are coming down in price, and they know that Pentiums are becoming standard, that hard drives are getting bigger," said Randal Giusto, an analyst at International Data Corp. (IDC) in Framingham, Mass. "They want more for less, and the manufacturers are having to respond to that."

But because users are holding out for faster chips and cheaper prices, sales were soft at the end of last year and may continue to be slow for the next several weeks. According to an IDC report, portable shipments were projected to hit 4.12 million by the end of last year, but only 3.6 million actually were shipped.

"But it can't last forever," Giusto said. "There is a lot of pent-up demand that notebook makers will have to meet."

Features of the Toshiba Satellite 100CS

- 75-MHz Pentium processor
- 8M bytes of DRAM
- 10.4-in. color screen
- Slots for two Type I or Type II PC cards or one Type III card

The flurry of notebook announcements includes the following:

- **Intel Corp.** this week will announce the 100-MHz Pentium processor, a chip aimed at the low end of the notebook market. The company said the chip will offer affordable, mobile multimedia capabilities.

Intel early in March is expected to announce a 133-MHz processor for notebooks, industry observers said.

- **Toshiba America Information Systems, Inc.** in Irvine, Calif., last week announced a low-end notebook aimed at corporate users who aren't interested in snazzy multimedia machines but want a solid communications portable (see chart).

Price slash

Texas Instruments, Inc. and NEC Technologies have announced price cuts. Prices of the TI high-end TravelMate 5000 notebooks will drop from between $2,699 and $3,199 to between $2,399 and $4,799. Prices on the NEC Versa 4000 notebooks will be reduced from between $3,499 and $5,499 to between $2,799 and $4,999.

The Satellite 100CS will cost $1,999, making it the lowest-priced offering from a top-tier vendor, said Roland Meudur-yan. He is product manager for Toshiba notebooks.

Giusto said, "You're getting the most for your money right now with this [Toshiba] machine. They are sending a message to IBM that they are going to be very aggressive with pricing. And Toshiba should have competition with this pricing soon."

- **AST Research, Inc.** in Irvine, Calif., this week will announce two notebook families, the Ascentia P series and the Ascentia J series. Both will include models with the new 100-MHz Pentium processor.

The J series offers the high-end notebooks in the line, with a modular bay that can support a CD-ROM drive, floppy drive or second battery. The P series is a mid-range notebook line. Prices will start at $2,499.

- **NEC Technologies, Inc.** in Mountain View, Calif., this week will announce two high-end Versa 4000 Series models. The latest models will have 75-MHz and 100-MHz processors. They will range in price from $3,799 to $4,499.

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Micro Focus Challenge 2000 Program

As challenging as it seems, it's a problem that's only going to get more dangerous with time. Today, 20% of business applications cannot handle dates after the turn of the century. By the year 2000 that number will increase to 90%.* Those that aren't converted will fail. The Micro Focus Challenge 2000 Program gives you a comprehensive program of tools and services to fully assess and implement the century date change. Start with the Application Express Offloader™ tool to automatically move the application to a PC. Use Micro Focus' Revolve® Year 2000 analysis tools to inexpensively locate the problem areas. Then, modify the application with Micro Focus COBOL Workbench.® You can even choose to replace your date logic with TransCentury® Calendar Routines. It's quick. It's efficient. It's complete. It's also an effective first step towards reengineering your legacy COBOL applications. After all, fixing a business application should be as quick and painless as possible (right Fido?).

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DEC speeds up Alpha servers

SGI, Sun now tail cranked-up Alphas

By Michael Goldberg

After engaging other vendors in the latest server speed derby, Digital Equipment Corp. seems to have pulled ahead by a nose in the neck-and-neck horse race.

Digital announced last week that it will use new Alpha microprocessors with 350-MHz clock speeds in its AlphaServer 8000 series (also known as the Turbolaser). The midrange AlphaServer 2000 and the AlphaStation 600 workstation also got more horsepower, at top Alpha chip speeds of 300 MHz and 333 MHz, respectively.

Coming a week after Silicon Graphics, Inc. (SGI) unveiled servers and workstations sporting the latest R10000 processor from Mips Technologies, Inc. [CW, Jan. 29], Digital sought to regain a processing performance edge in the market by ratcheting up the cycles-per-second on its Alpha chips, analysts said.

Alpha soup

Digital has installed 350-MHz Alpha microprocessors in the AlphaServer 8400 "Turbolaser," 300-MHz chips in the midrange AlphaServer 2100 and 333-MHz processors in the AlphaStation 600 workstations.

Meanwhile, the UltraSPARC chips from Sun Microsystems, Inc. keep Sun in the race, and all the contestants wait to see what the anticipated PA-RISC 8000 processors from Hewlett-Packard Co. will do, observers said.

Digital is "putting their new flavor [Alpha processor] at the higher end and migrating last year's exciting chip into smaller systems," said Rich Partridge, an analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y. "It does create better price/performance, but they do it incrementally in a way that doesn't create headlines. It does keep them on top."

Turbo power

Digital's high-end enterprise server

PRODUCT:	AlphaServer 8400 Turbolaser
PROCESSOR:	Up to 12 Alpha EV5
CLOCK SPEED:	350 MHz
OPERATING SYSTEMS:	Digital Unix, OpenVMS
AVAILABILITY:	March
PRICE:	$319,000 for a two-processor model with 512M bytes of memory and a 2G-byte hard disk

As part of its product refresh, Digital said it is offering more workstation graphics packages. The company is also offering more Peripheral Component Interconnect (PCI) slots to increase data throughput in its midrange AlphaServer 2100 and entry-level AlphaServer 1000 that run Windows NT, Digital Unix or OpenVMS.

And Web-friendly AlphaServer 1000s will come with Netscape Communications Corp.'s Communications Server software, Digital said.

Rave reviews

Software engineers at the Internet products group of Attachmate Corp. in McLean, Va., have been testing new products for the past few months using an AlphaServer 2100 with eight PCI slots.

"The thing was rock-solid. There's just about nothing that runs any software any faster than an Alpha. We were able to put thousands of connections running at it, and it really rises to the challenge," said Larry Henry, engineering manager at the Attachmate Internet products group.

Performance also is a prime issue for workstation user Gary Davis, president of Animation House, Inc., an Evansville, Ind., graphics and multimedia producer.

Davis said the availability of Microsoft Corp.'s Softimage graphics packages makes the Alpha workstations more attractive. "With the availability of the new [processors] and the software, I don't believe the Alpha workstation can be beat," he said.

Sun's historically immature customer support grows up a little. See page 61.

Top Unix vendors pushed toward 64-bit software

Sun, HP/SCO will map out long-term plans at UniForum

By Craig Stedman

Those who aren't ready to ship provide road maps. And that is what customers looking for 64-bit operating systems will get from key Unix vendors at next week's UniForum '96 conference in San Francisco.

Sun Microsystems, Inc. and the team of Hewlett-Packard Co. and SCO, Inc. each will use UniForum as a stage to detail plans for developing 64-bit versions of their software. However, analysts said they don't expect to see much in the way of deliverables for at least another year.

The Unix bigwigs are being prodded into action by Digital Equipment Corp.'s increasing success with its 64-bit Turbolaser systems. Silicon Graphics, Inc. also unleashed a 64-bit operating system across its full hardware line two weeks ago, further increasing the pressure on the likes of Sun and HP.

"Clearly, the clock is ticking for them," said Tony Iams, an analyst at D. H. Brown & Associates, Inc. in Port Chester, N.Y. The need for 64-bit applications is in its infancy, but Digital "has made a case" for the database performance gains the technology can provide, he added.

Hardware is here

The top Unix vendors, except IBM, will have 64-bit hardware available in the next few months, and users said that alone provides welcome price/performance benefits compared with 32-bit systems. But operating system support would open up whole new vistas, especially for query-intensive uses.

"It's just a matter of time before the applications begin to catch up and exploit this technology," said Dennis Courtney, chief information officer at Dunlop Tire Corp. in Amherst, N.Y. Dunlop recently installed a 64-bit Sun server to run an electronic data interchange application that lets customers place orders and be billed on-line.

The larger file sizes and increased addressing that 64-bit software provides "should give us more capacity on heavy crunchers such as ad hoc queries," Courtney said. The tire maker's monthly general ledger reports are generated by hundreds of built-in database calls that leave the application "screaming for resources," he added.

In the long run

"It will be the 64-bit operating systems that allow us to avail ourselves of the next warp on the power curve," said Michael Prince, director of information systems at Burlington Coat Factory Warehouse Corp. in Burlington, N.J. Prince said he has no pressing need for that power, but he is looking for 64-bit clues from vendors to help him determine "who's going to be there for the long haul."

Sun confirmed its Solaris operating system will become fully 64-bit "over the next couple of years."

Iams said he expects Sun to take an incremental approach, starting with support for 64-bit file sizes in the next 12 to 18 months. Sun was burned badly on the last Solaris version change, "and the last thing they need right now is to incur another migration burden for their users," he said.

HP has said the next major revision of its HP-UX software, due out next year, will be a 64-bit version. That will then be merged with SCO's PC-based Unix during 1998.

The two companies are previewing the technology at UniForum, and SCO will further detail plans for combining its OpenServer software with the UnixWare code it bought last year from Novell, Inc.

Out on Highway 64

Availability status of 64-bit Unix hardware and operating systems

Vendor	Hardware availability	Operating system availability
Digital	Now	Now
Hewlett-Packard	Late March	1997
IBM	Late 1997*	1997/1998*
Silicon Graphics	Now	Now
Sun	Now	1997/1998

*Analyst estimates

SCO gets caught up in the Web

SCO will try to hop on the Internet train this week before it disappears around the bend.

SCO is announcing plans to make its PC-based Unix operating systems into World Wide Web servers. But executives at the Santa Cruz, Calif., company conceded that they are playing catch-up against well-established Internet server vendors such as Sun Microsystems.

Windows NT also poses an obstacle to SCO's Web ambitions. The late-blooming Web server strategy should bring sighs of relief to SCO's customer base, "but it may be difficult for them to get new business," said Clay Ryder, an analyst at Zona Research, Inc. in Redwood City, Calif.

SCO's OpenServer will be Internet-enabled in the second quarter. UnixWare, its other operating system, is supposed to get the Web treatment a few months later.

The strategy, code-named Atlas, includes a Hypertext Markup Language-based configuration tool, address filtering and intrusion detection features and a deal to use Netscape Communications Corp.'s Web browser and electronic commerce and communication servers.

— Craig Stedman

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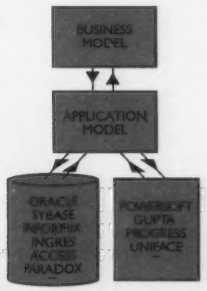

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3Com moves into slower ATM field

Cheaper 25M bit/sec. products bring net technology to desktop

By Bob Wallace

3Com Corp. is quietly planning to enter the nascent ATM 25M bit/sec. market with a low-cost switch and adapter designed to extend the high-speed switching technology from backbone networks to the desktop.

Asynchronous Transfer Mode (ATM) is a next-generation switching technology that transmits traffic — initially data and video — more quickly than today's networking equipment.

The lion's share of ATM products run at 155M bit/sec. and provide too much bandwidth at too high a cost. But a growing alternative market of ATM products that run at 25M bit/sec. makes those issues moot.

ATM switching at 155M bit/sec. and higher is used primarily in backbone networks, where there is enough traffic volume to justify the equipment. ATM at 25M bit/sec. was designed solely as a desktop technology.

To deploy the latest evolution in ATM technology, users need new 25M bit/sec. ATM adapter cards for their PCs and ATM 25M bit/sec. switches. The cost per user to make the transition has dropped about $200, from about $1,000 per seat last year. No new cabling is required.

$800, tops
As expected, IBM launched its 25M bit/sec. ATM switch and adapters. They bring the price of deploying the technology to the desktop to less than $800 per user.

3Com will join IBM, Madge Networks, Inc. and start-ups WhiteTree Technologies, Inc. and First Virtual Corp. in this switch market.

Analysts say there is strong demand for 25M bit/sec. ATM products.

"About 1.2 million desktop computers come up for replacement in any given year, making them candidates for ATM 25. The new ones need new adapter cards," said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy. "If ATM 25 products were sold to 2% of those computers, that would be more than the amount of ATM sold at all other speeds since day one."

"We've had lots of requests from our customers for 25M bit/sec. ATM products," said Nachman Shelef, vice president and general manager of 3Com's ATM division.

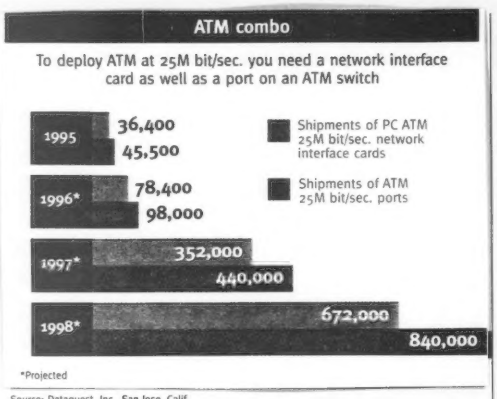
"We're using 25M bit/sec. ATM products to support multimedia applications that comprise data and video throughout our organization and are supported via fiber to every hotel room, gaming table and office," said Jerry Wibel, a network manager at Foxwoods Casino and Resort in Ledyard, Conn.

The planned 3Com stand-alone switch, dubbed the Cellplex 4000, will ship in June, Shelef said.

The Cellplex 4000 will support 16 ports, each of which will provide a dedicated 25M bit/sec. bandwidth pipe. With the product introduction, Shelef said 3Com plans to offer 155M bit/sec. uplinks, which are crucial because they provide the 16 desktops on each switch with high-speed access to servers, computer systems and backbone networks.

Although 3Com wouldn't provide specific pricing per port for the Cellplex 4000, the internetworking giant expects to price the device at $500 to $600 per port, which is close to IBM's pricing.

3Com is considering reselling IBM's Token Ring switch.



Source: Dataquest, Inc., San Jose, Calif.

ComNet '96

Remote access server, Token Ring switches among offerings

By Bob Wallace
WASHINGTON

Cisco Systems, Inc. used the ComNet '96 conference here last week to announce an innovative remote access server, while Cabletron Systems, Inc. outlined its Token Ring switching plans.

Remote access servers give managers flexibility in supporting remote sites and mobile workers; Token Ring switches let IS managers move users off overburdened shared-capacity Token Ring LANs and give them dedicated bandwidth.

Cisco announced the AS5200, a remote access server that supports dial-up and dedicated wide-area network links. It comes with modems from either U.S. Robotics Corp. or Microcom, Inc. The unit routes IP and Novell, Inc.'s IPX protocols.

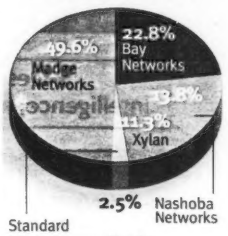
But what may differentiate the AS5200 from competing products is its multichassis, multilink Point-to-Point Protocol (PPP). Multilink PPP lets users call up the second of two 64K bit/sec. B channels on an Integrated Services Digital Network (ISDN) Basic Rate Interface line when needed.

Typically, however, if IS managers give out one main number and have two or more AS5200 remote access servers on the corporate LAN, the second B channel may not be connected to the same box as the first B channel.

The Cisco remote access server has the smarts to forward the data from the second B channel to the box with the first B channel.

"This functionality is important to us because we run a network across Canada that supports a heavy volume of dial-up links as well as ISDN connections," said Scott Knapman, vice president of Internet and intranet services at Bell Global Solutions, a unit of Bell Canada in Toronto. "We needed this support on one very scalable platform."

The AS5200, with the modems, will ship in the second quarter, with pricing starting at $37,500. The CiscoSecure server, which integrates authentication, authorization and accounting for remote access, is slated for April delivery. Pricing will start at $4,200.



Source: Dell'Oro Group, Menlo Park, Calif.

Entering the Ring

Separately, following a purchase designed to beef up its Token Ring portfolio, Cabletron laid out its Token Ring switching blueprint, one it hopes will help it take on the heavyweights (see chart).

Token Ring switching is becoming more important as Token Ring LANs expand in size and more users contend for the same amount of bandwidth. Of the Top 4 networking vendors, 3Com Corp. and Bay Networks, Inc. already offer Token Ring switching modules in select switches. Cisco will offer them soon as well.

Cabletron plans to:

- Continue reselling eight- and 16-port Token Ring switches from start-up Nashoba Networks, Inc.
- Resell four-port Token Ring switching modules for the five-slot ATX chassis hub, which it got through the acquisition of Standard Microsystems Corp.'s switching unit.
- Develop Token Ring switching modules for its SmartSwitch line.

Reform

CONTINUED FROM COVER 1

there will likely be a burst of merger activity that will result in bundled packages of local, long-distance and cable services.

ComNet '96 convention-goers generally were bullish on the approved bill, which President Clinton is expected to sign into law this week. "More competition will drive prices down and bring new services," said Charles Himsel, technology analyst at Ivans, Inc. in Tampa, Fla.

James Georgakis, assistant vice president at NatWest Bank in Melville, N.Y., said the competition will become "cutthroat," which means "a good deal" for customers.

Lonnie M. Johns Jr. agreed. "I'd like to see more people playing the game; that will drive rates down," said Johns, who is corporate controller at the National Fruit Product Co. in Winchester, Va.

Telecom deregulation

Johns said he is paying 15 cents to 17 cents per minute for Sprint Corp. long-distance service but wants to see prices in the range of 9 cents to 10 cents per minute. He also said he isn't happy with recent hikes in the local access charge levied by Bell Atlantic Corp. on his long-haul T1 line — and hopes more competition can bring those prices down.

Robert Rosenberg, an analyst at Insight Research Corp. in Livingston, N.J., predicted that within three years of the reform bill's passage, businesses will see savings of up to 35% on bundled packages of voice and data services.

Andrew Stratford, vice president of Congress Financial Corp. in New York, already takes advantage of the type of big-city competition that telecommunications reform is expected to push out to places such as the Shenandoah Valley, where National Fruit is located.

Stratford uses LDDS Worldcom, Inc. for long-distance service and Teleport Communications Group for local phone service. He estimated that his costs average less than 8 cents per minute.

Rate relief is only part of the picture, however. Eastman Kodak Co. is looking for high-bandwidth services that will help drive sales of the company's imaging products, said Fred Williamson, director of imaging technology policy at Eastman Kodak in Rochester, N.Y.

"Like a lot of other companies, we're looking forward to delivering our next generation of products and services over the network," Williamson said. For example, Kodak has scanners that take film-based images and convert them to digital images.

But the infrastructure to transport those bandwidth-intensive images isn't available yet, he said.

THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION.

Your 'true voice' sounds fine over frame relay, too

By Neal Weinberg
WASHINGTON

It looked like an ordinary telephone, and it sounded like an ordinary call. But the voice traffic zipping across the ComNet show floor last week was actually hitching a free ride on a frame-relay data connection.

AT&T Corp. and frame-relay carrier EMI Communications Corp. were among a half-dozen vendors that offered demonstrations at ComNet '96. Their displays were designed to dispel the widespread notion that voice over frame relay results in subpar sound.

AT&T's equipment division announced it will market under its brand name Micom Communications Corp.'s voice-over-frame hardware. And EMI, which operates its own frame-relay network, said it will offer a voice-over-frame service. Several vendors also showcased second-generation products, including ACT Networks' NetPerformer, Micom's Marathon and Memotec Communications, Inc.'s Thunderbolt.

COMNET '96

Early users, and some analysts, say voice over frame relay is a viable way for midsize companies to save money on internal communications costs. Others are skeptical.

Voicing skepticism

Christine Heckart, an analyst at TeleChoice, Inc., a consultancy in Verona, N.J., said that the technology works and that it makes sense for midsize companies to run voice over frame relay to save money. There is less incentive for large companies to do that because they can negotiate steep volume discounts on voice traffic, she said.

But Michael Smith, an analyst at Datapro Information Services, Inc. in Delran, N.J., said users sacrifice network performance when they add high-priority, time-sensitive voice traffic to the data-packet stream. He predicted voice over frame relay will have niche appeal, primarily in the international arena, where voice costs are significantly higher than in the U.S.

Stowaway voice

Voice over frame relay has proved to be an ideal fit for the Allen Lund Co., a truck transportation brokerage in La Canada, Calif. The company has been stowing voice with its frame-relay data cargo since August. When the firm needed more bandwidth, it ditched its 9.6K bit/sec. private lines for a 56K bit/sec. frame-relay service from MCI Communications Corp.

By purchasing and installing an integration multiplexer from Micom, Allen Lund was able to add voice and fax traffic to its data stream. Ken Lund, manager of information systems at the company, said the move to frame relay has saved the company $4,000 a month. And putting voice and fax over the frame connection has cut $1,200 per month off the company's long-distance phone bill, he said. The sound quality is fine, Lund added.

The $1,200 savings is significant, he said, but it still amounts to only a 3% reduction in his phone bill. That is because voice over frame relay comes into play only when employees make internal calls to one of the 13 company locations that are part of the frame-relay network.

Voice over frame relay is also working for Medical Transcription Corp. in Reading, Mass. The company converts dictated voice reports to text.

Larry Uchin, managing director at the company, said the firm's previous system comprised dedicated private lines from his New England locations to the hospitals the company services.

After switching to a 56K bit/sec. frame-relay service that incorporates data and voice, Uchin reported, "Our overall cost running with frame [relay] as opposed to dedicated lines is probably a 40% savings." He added, "We have had no problems in voice degradation."

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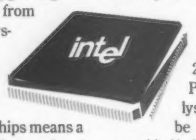
Intel will speed up chip rollout

By Bob Francis

Intel Corp. is souping up its rollout of higher-speed Pentium and Pentium Pro processors this year in the wake of better-than-expected results from new manufacturing technologies.

For companies upgrading their user desktops from 16-bit operating systems to 32-bit systems such as Windows NT, the accelerated schedule for Pentium Pro chips means a more readily available supply of affordable PCs and servers. Pentium Pro chips were designed for 32-bit computing.



By the end of the year, a 180-MHz Pentium Pro PC should cost about $2,000. Those systems currently cost about twice that.

The Santa Clara, Calif., vendor also said it is ahead of schedule on the 200-MHz Pentium processor, which will ship in volume by the fourth quarter.

"Intel is saying to corporate customers that they can expect 32-bit systems out there at a reasonable price," said Linley Gwennap, editor in chief of the "Microprocessor Report," a newsletter in Sebastapol, Calif.

Intel didn't disclose plans for chips beyond the 200-MHz Pentium Pro, but most analysts expect them to be announced in the second half of the year.

Carl Everett, senior vice president of Intel's desktop products group, said last week that the company is moving quickly to the 0.35 micron manufacturing process. That means Intel's high-end chips will reach volume production rapidly, a move that lowers their cost.

By the end of the year, Intel expects its lowest-performing chips to be 120- and 100-MHz Pentiums. The current low end is the 75-MHz Pentium.

Late deliveries

Yet analysts said Intel is slipping on delivery of the P55C, a multimedia version of the Pentium chip, which won't be ready until the fourth quarter. The chip, designed more for home and small office users, is unlikely to be readily available in time for the heavy-spending holiday season.

Corporate customers also can expect Intel's motherboard business to include systems management, security and support features. Intel motherboards are used by a variety of PC vendors in desktop systems. Those vendors include Compaq Computer Corp., Dell Computer Corp. and IBM. Intel also has plans to add Internet connectivity to its desktop systems by the end of the year, Everett said.

Intel also announced it will begin shipping its multiprocessing server motherboards and chip sets by the end of the first quarter. Those systems will be used by a variety of PC server vendors for four-way multiprocessing systems that use Pentium Pro chips.

Users to Novell

CONTINUED FROM COVER 1

Either they really jump-start NetWare, or Windows NT Server will eventually take it all," said Steve Austin, MIS director at Helicopter Support, Inc. in Orange, Conn.

Austin wants the Provo, Utah-based firm to bolster the Internet and wide-area network capabilities of NetWare.

Other users noted that the diversions of the past two years have had other deleterious effects. These include tardy technological advances in NetWare 4.1, being late to market with key cross-platform connectivity software and a drain on the research and development dollars devoted to NetWare.

Late arrivals

Those sentiments were echoed by Ken Cieszynski, senior staff engineer at United Air Lines, Inc. in Elk Grove Village, Ill., which deploys 150 NetWare servers at 10 sites. He said NetWare's technological advances "have stalled" during the past two years, making NT Server more attractive to some users. Still, United Air Lines doesn't anticipate switching from NetWare any time soon.

And the fact that Novell sold WordPerfect for about 25% of what it originally paid for the company has left the firm financially limited in its ability to compete with the deep pockets of Microsoft, users said.

"If Novell hadn't done all these acquisitions, NetWare would have had a lock on corporate America, and it wouldn't have seen 15% of its installed base defect to Windows NT Server," claimed Gary Wilkerson, senior planning analyst at health care provider Kaiser Permanente Health Plan, Inc. in Atlanta.

"Something had to give, and it was NetWare 4.1 development which slowed to a crawl," agreed Ray Jarosik, corporate information systems project leader at Medtronics, Inc. in Fridley, Minn., the world's largest maker of pacemakers. "Microsoft was able to release its NDS [NetWare Directory Services] client for Windows 95 months before Novell's requester. What does that tell you?" Jarosik said.

Thad Hymel, manager of distributed systems at another large Novell shop, Hibernia National Bank in New Orleans, said his first thought was, "How could they leave $670 million on the table?" Hymel said the money would have been better spent on researching how to make NDS more robust, widen its ties to other network operating system platforms and continue to improve its symmetrical multiprocessing to make NetWare 4.1 more scalable.

Demo '96 offers up Internet products

By Charles Babcock
INDIAN WELLS, CALIF.

The annual Demo show tends to be an inbred affair for developers of "cool" desktop products. But Demo '96 last week demonstrated a change of heart and looked outward to the Internet, as it featured fresh offerings for the World Wide Web.

Home page development environments, Web site managers and Web publishing systems were among the items highlighted here before an audience of 1,600.

Sun's Internet 'thin client' *also perked up interest at the show*

Demo puts many small startups in the limelight, but one of its best moments this year was when David Coursey, editor of "PC Letter" and master of ceremonies, made an impassioned plea on behalf of Apple Computer, Inc.

He urged the assembled developers to support Apple, despite its financial troubles. A "two-platform industry ... will be better for Microsoft," Coursey said.

The show connected to the 'net, but also offered several inadvertent disconnects. Several carefully staged demonstrations failed in their tracks. Their presenters frequently dropped the feature being shown and adlibbed their way to the next one.

Eric Schmidt, chief technical officer at Sun Microsystems, Inc., attempted to demonstrate the Java programming language, but several sequences in his applet refused to respond on cue.

Jim Gable, senior director of system software at Apple, showed off part of Copland, the company's next-generation operating system for the Macintosh, and its powerful File Finder. The alpha code represented one of the many leading-edge projects in Apple's labs, he said. But the newspapers that day carried stories about a freeze on Apple's research and development.

The oft-rumored, $500 Internet "thin client" made a cameo appearance (see photo at left).

Schmidt displayed a prototype Internet client from Sun, but it was unclear what the client would do once it was connected to something. The unit reportedly had 8M bytes of RAM and a Sun SPARC processor, but it wasn't attached to a monitor. A second mockup had a coffee warmer affixed to the top — a pun on the firm's HotJava browser.

Coursey had invited IBM and Oracle Corp. to show off their proposed clients but got no additional takers. He was reduced to rummaging through a box of off-the-shelf parts with Jim Louderback, editor of *Windows Sources* magazine. They succeeded in assembling a client, but the total cost came to $619.

Marc Porat, chairman of General Magic, Inc. in Sunnyvale, Calif., demonstrated how active agents under his firm's Telescript language "can migrate from Web site to Web site" looking for previously designated information without the user being logged in.

Employers crack down on Web use and abuse. See page 55.

'net/intranet access

Products on the way to help users link up

By Dan Richman

Technology to be announced tomorrow will let some users make Internet or intranet connections to their corporate data warehouses.

Red Brick Systems, Inc. in Los Gatos, Calif., and Microstrategy, Inc. in Vienna, Va., will announce the new access products at the DCI/Meta Group Data Warehousing Conference in Orlando, Fla.

Previously, both the Red Brick Warehouse relational database management system and Microstrategy's DSS Server relational on-line analytical processing (OLAP) engine worked only within conventional networks.

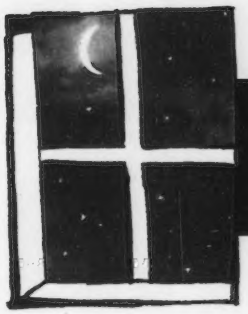
"Now we'll be able to let employees on the road send and receive sales and inventory data for our 5,000 stores without worrying about dialing into a network or maintaining networking software on their laptops," said Red Brick user Dick Silvers, chief information officer at Tandy Corp., a chain of electronics stores headquartered in Fort Worth, Texas.

Red Brick Warehouse initially will achieve Internet/intranet accessibility only through the use of another vendor's product: WebOlap from Information Advantage, Inc. in Minneapolis. This $29,000 product, set to ship by July 1, bundles Internet access with DecisionSuite Server, an OLAP engine.

By "around midyear," however, Red Brick will also deliver a product allowing Internet access to Red Brick Warehouse from other front ends, said Chris Grejtak, Red Brick's vice president of marketing.

For its part, Microstrategy will begin shipping by April 1 DSS Web, a gateway between the Internet and the company's DSS Server OLAP engine, which provides multidimensional views of any major relational database management system, said CEO Mike Saylor.

DSS Web will sell for $5,000 alone or $40,000 with DSS Server.



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Win 95 security measures mollify users

Microsoft patches loopholes, restricts remote access

By Laura DiDio and Stuart Johnston

Three months after Microsoft Corp. delivered a patch to close security holes in its file and print sharing facility in Windows 95, users are generally satisfied. They also report that the operating system is much more secure.

Microsoft also recently released higher-level network and user-level security measures in its Microsoft Plus pack for Windows 95. This lets businesses prevent or restrict remote access into the corporate network.

Security patch

"The security patch did the job. I tried everything to break in to my Windows 95 PCs and found nary a crack," said Sam Avera, computer information systems specialist and chief of hardware architecture at the State of Washington Aging and Adult Services in Olympia.

The patch Avera referred to was a set of software drivers that Microsoft released last October over various on-line services.

The drivers fixed several potential security loopholes. One flaw could have affected Windows 95 clients attached to Windows NT Server or Novell, Inc. NetWare servers at corporate sites where customers had manually switched on the "File and Print Sharing" capability.

The drivers also fixed a gap in Windows 95 that allowed unauthorized users to read all the files residing on any other Windows 95 machine with a hard drive connected to the Internet.

Avera, who once was a cryptographer at the National Security Agency in Washington, said that after he installed the updated Windows 95 drivers, he specifically looked for more loopholes but found none.

Don't take a chance

Don Barker, associate professor of information sciences at Gonzaga University in Spokane, Wash., said the college maintains a high level of security because "we don't keep anything [on the PCs] in our labs that's important."

"If you're really concerned about security, you'll go to [Windows] NT Workstation anyway," he added.

Bug free

Users can get the two updated File and Print Drivers for Windows 95 File from the Microsoft Plus pack. Users also can download them for free from the on-line services — on CompuServe: Go Microsoft; on the Internet: http://www.microsoft.com/windows.

Other users, such as Greg Scott, information services manager for the College of Business at Oregon State University in Corvallis, agreed with Avera. "I'm not losing any sleep," Scott said. "We do not use share-level [security] because we don't allow peer-to-peer access" between users' machines.

Jim Lisiak, a senior software engineer at Chevron Information Technology Co. in San Ramon, Calif., said his organization allows peer-to-peer access but lets its "users decide whether to enable it." Lisiak said the key is educating the user about security holes. "If the person doesn't want anyone to have access from the outside, he turns it off," he said.

But Avera cautioned that even the most impregnable security measures in the world are useless against user error or indifference.

"In the end, it's a matter of common sense. There's nothing any software package or any administrator can do to defend a system if users share their passwords with other users," he said.

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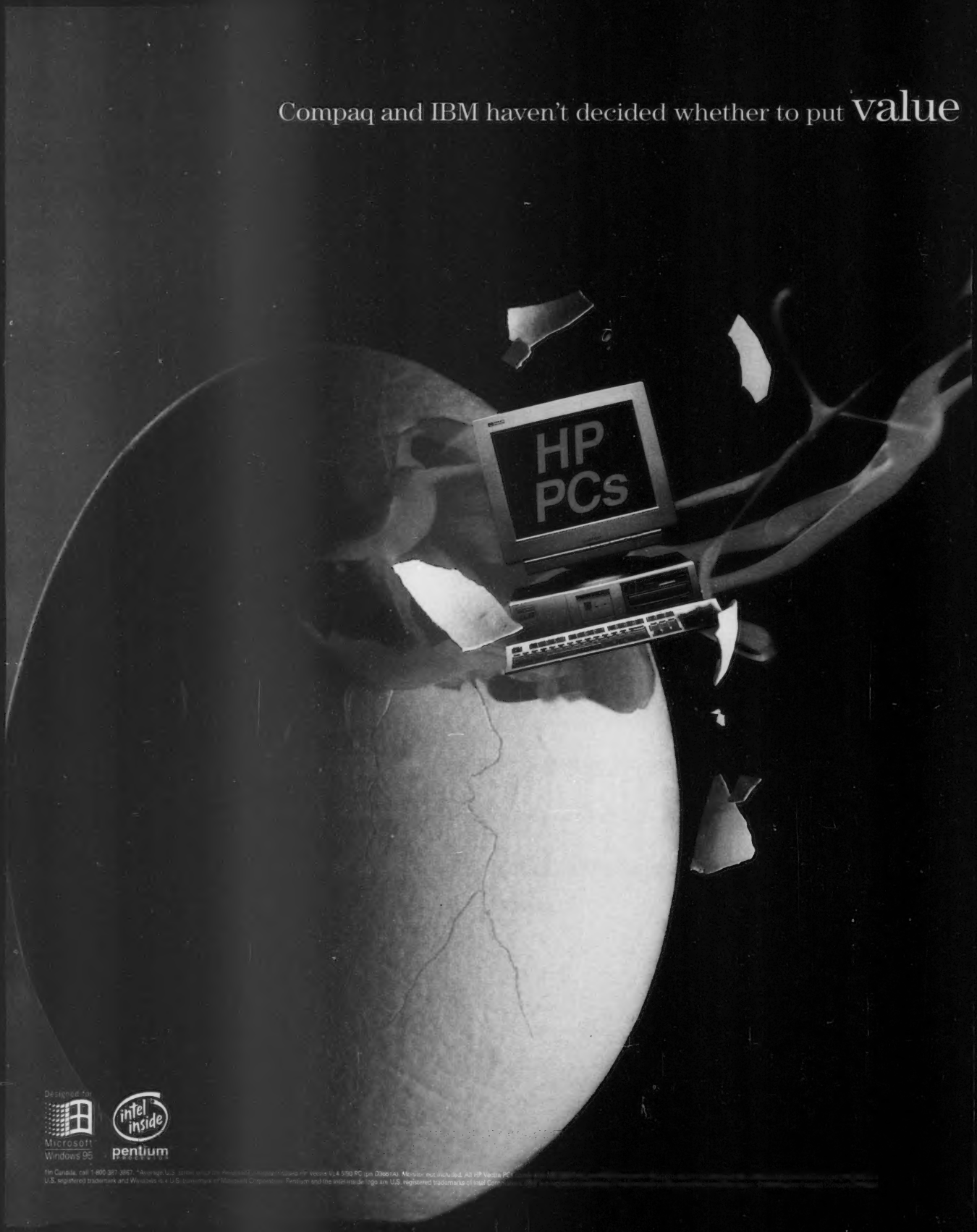
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Unsnarling network traffic jams

Frontier tackles remote monitoring of switches

By Patrick Dryden

Relief is on the way for administrators who need to manage traffic within and between switches.

Frontier Software Development, Inc. last week introduced Unison, a Remote Monitoring (Rmon) architecture that diagnoses switched-LAN networks. Key components include the first probe device for Fast Ethernet segments and new software for monitoring traffic by switch or port and eventually by virtual LANs as well.

Through Unison, Frontier in Chelmsford, Mass., seeks to unify monitoring of switched networks without sapping patience, performance and budgets. It achieves this partly by not requiring a full Rmon probe for every switch port.

Instead, the Unison approach relies on agents embedded in switches to report basic statistics that warn of possible problems. Then an administrator or an automated script can focus the full analysis, packet capture and processing power of Frontier's Netscout probe on any port.

"This seems to be the best trade-off of monitoring vs. performance because you can bog down any box when you turn on full Rmon reporting," said Bob Childress, network management analyst at Texas Instruments, Inc. in Dallas. "I want to flag conditions based on my performance parameters, then bring in the big probe."

Frontier's approach "removes key inhibitors for network planners who have held off on frame switching due to the lack of management services," said John Morency, principal at The Registry, Inc., a network consultancy in Newton, Mass.

"Now [users] can take advantage of Rmon instrumentation to see and measure and report what's going on," he said. Better manageability will help users extend switching beyond workgroups and departments, Morency said.

Improved GUI

An enhanced version of Frontier's Netscout Manager central monitoring program will add a SQL-based trend analyzer and Switch Monitor behind a graphical user interface (GUI).

Netscout Manager Plus will ship in March and costs $5,995 for Windows PCs or $8,995 for Unix workstations.

The products let an operator point and click on switches from leading vendors. A central monitoring console combines Rmon information from each vendor's switch and from Netscout probes.

A new Netscout Fast Ethernet Probe, available now, can monitor Ethernets that operate at 100M bit/sec. The probe costs $6,995. A version for server and switch links that run in full-duplex mode of 200M bit/sec. should ship this month for $13,495.

Other Netscout probes can monitor Ethernet, Token Ring, Fiber Distributed Data Interface and wide-area network traffic.

Warren Zevon

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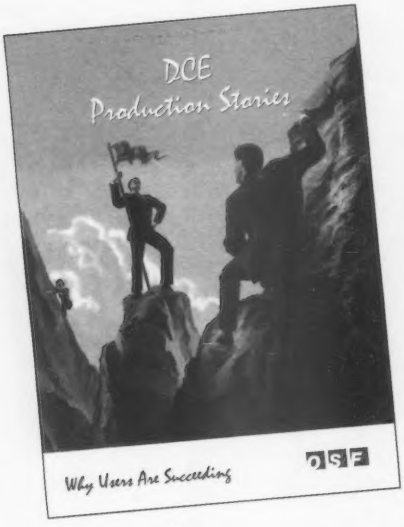

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Stock exchanges make IT bull run

The big three use wireless trading, integrated systems to lure new listings

By Thomas Hoffman
NEW YORK

At a time when the stock market continues to hit record levels, the nation's top three trading hubs — the New York Stock Exchange, the Nasdaq Stock Market and the American Stock Exchange — are using high-tech lures to entice blue-chip companies to list with them.

"We're fighting two fronts — equities and options — and we have to stay technically advanced [to compete] in both areas," said William Strauss, chief financial officer at the American Stock Exchange, the world's largest options exchange.

Equities refer to stock ownership. Options are contracts by which a shareholder can, for example, buy or sell stocks at a specific price in a stipulated period.

Once a close second to the NYSE in companies listed, the Amex has shrunk from 1,222 companies in 1970 to 791 companies today. The NYSE's listings, in the meantime, have swelled from 1,311 to 2,700.

Richard Edgar *says the NYSE is developing a wireless trading system for 800 brokers*

To hang on to its remaining flock and lure new companies, the Amex is undergoing a technology facelift highlighted by a wireless trading project. That effort will permit up to 1,000 options traders to buy and sell 1 million contracts daily using handheld devices from Symbol Technology Corp.

"Technology is giving us the opportunity to compete" with the larger exchanges, said Ralph Rafaniello, senior vice president of market operations at the Amex. Executives there declined to disclose what they have spent on wireless projects, though industry experts have estimated the figure at $1 million to $2 million.

The system, which is already being used by 100 Amex floor traders running their own proprietary applications, is slated to become fully operational by midyear. That is when the spread-spectrum communications system that supports wireless trading will become fully integrated with the underlying TCP/IP network, said Warren Kaiser, senior vice president of information technology.

The Big Board *leads the pack and 'is definitely moving ahead in terms of competitive advantage,' one analyst says. The NYSE hopes to soon develop a prototype radio frequency communications system over an FDDI network.*

Trading places

Meanwhile, the NYSE and Nasdaq have been bulldozing ahead with their own technology initiatives.

The NYSE, the world's largest equities market, has nearly completed a two-year, $125 million project. That effort includes retrofitting the trading floor with 500 flat-panel screens from Fujitsu Ltd. and 2,500 Windows-based workstations from PixelVision, Inc. This integrated technology program has already doubled the amount of information available to brokers and traders on the exchange floor.

By the turn of the century, the NYSE expects to reach 600 million shares per day. It reached that level only once in history — on "Black Monday," when the stock market crashed in October 1987.

Last year, the NYSE's daily volume leaped to more than 340 million shares per day, a 14% gain over the 291.4 million shares a day averaged in 1994. Helping the exchange keep pace with the rising volume is SuperDot, the exchange's electronic order delivery system. Thanks to periodic upgrades, SuperDot is now capable of handling up to 375 messages a second, or close to 2 billion shares a day.

SuperDOT was developed in-house by the NYSE in 1979 with the Securities Industry Automation Corp., the technology arm for both the NYSE and the Amex. It runs on a complex of Tandem Computers, Inc. Cyclone mainframes, which the NYSE will upgrade to Tandem's high-end Himalaya processors during the next few months.

From a technical standpoint, the NYSE "is definitely moving ahead in terms of competitive advantage," said Lawrence Tabb, a technology analyst at The Tower Group, a Wellesley, Mass.-based financial services and technology consultancy.

Et tu, NYSE?

Not to be outdone by the Amex, the NYSE is busy crafting a wireless trading environment of its own that will be sized for 800 brokers, said Richard Edgar, executive vice president of market operations.

The NYSE is still in the process of selecting a hardware vendor, but the exchange expects to be up and running with a preproduction environment by the end of the summer. The systems will connect using radio frequency communications over an Ungermann-Bass, Inc. Fiber Distributed Data Interface network, Edgar said. "Our goal was to support the needs of our brokers who, by the nature of their business, need to move about the trading floor," he said.

The most beleaguered of the three exchanges has been Nasdaq, which has slogged through investigations by the U.S. Justice Department and the Securities and Exchange Commission into allegations of improper dealer trading practices. The exchange has also been trying to distance itself from the embarrassing back-to-back system outages it experienced in July and August 1994.

Since then, the all-electronic stock market has been hustling through a series of upgrades.

William Strauss, *CFO of the Amex, says staying technically advanced is a must to compete with rivals*

Nasdaq moved off aging Unisys Corp. 1100/90 mainframes to Unisys 2200/900 machines that are nearly four times faster. Now it is rewriting its proprietary mainframe software code, using Texas Instruments, Inc.'s Information Engineering Facility computer-aided software engineering software.

Nasdaq will begin phasing in the rewritten software in the first quarter of 1997, said John Hickey, senior vice president in charge of production services for Nasdaq at its Trumbull, Conn., data center.

"It's a very difficult phase-in because we cannot interrupt our service levels," Hickey said. "That's been our challenge all along."

Traders warily try wireless

Mention wireless trading in any trading pit and you are as likely to get a black eye as a thumbs-up.

For all its promises of lightning-quick processing and improved accuracy, wireless trading has become a political football in an institution that carries a stubborn respect for its paper-based heritage.

"The one thing that is consistent about wireless trading is that the traders hate this stuff, and they can't tell you why," said William Frezza, president of Wireless Computing Associates, Inc., a consultancy in Yardley, Pa.

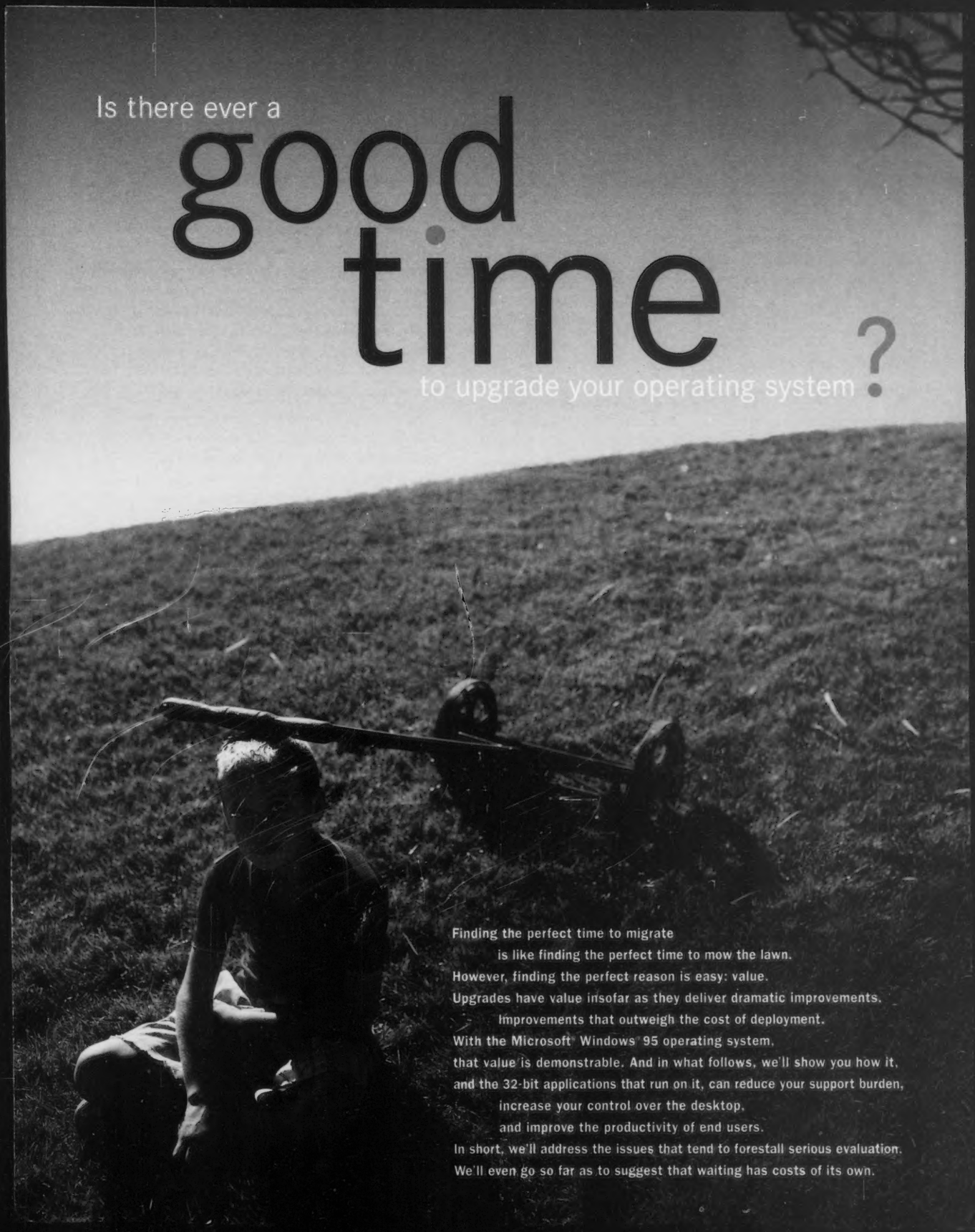
"Well, I'll tell you why: They can't cheat," Frezza added.

In theory, standard wireless systems should level the playing field and give all traders the opportunity to make their trades over the same network at the same data rates. Officials at the American Stock Exchange decided that all members will have to use handheld devices from Symbol Technology Corp., but they can run any software they want.

Stuart Milsten and Amex traders like him are delighted with wireless trading. "Having computerized analytics in my hand is a lot easier than calculating options in my head," said Milsten, a market maker at STR Trading Partners in New York. He has used a handheld device for trading for the past year.

But Milsten acknowledges that wireless is a tough sell to some of the exchange's grizzled veterans. "The older guys here are afraid of change. But if they see some guy making more money who happens to be walking around with funny antennas sticking out of his head, they'll adapt," Milsten said.

— Thomas Hoffman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and improve the productivity of end users.
In short, we'll address the issues that tend to forestall serious evaluation.
We'll even go so far as to suggest that waiting has costs of its own.

Support for IS.

Support for system administrators begins with support for end users. With its simplified interface, Windows 95 allows users to work far more independently than in the past. Simply put, the greater their autonomy, the less time you spend answering obvious questions.

But it's not just the interface that's improved; the whole system is more reliable. Thanks to the 32-bit protect-mode components of Windows 95, users can run multiple applications at the same time, without running out of system resources or freezing-up their PCs. The same is true even if a network server goes down. And, with 32-bit applications now able to run in their own memory space, the likelihood of one app crashing another is almost nil.

Today, you can turn the desktop into the most tangible technology investment your company can make.

What's the upshot of all this? Well, it won't exactly turn you into the Maytag repairman, but it can cut helpdesk calls by 7 to 14% a year.[1]

Still, in designing a new OS, we realized that to make things easy for the end-user at the expense of the IS department would be self-defeating. And to that end, Windows 95 offers a variety of powerful tools to help you better manage your network and your time.

Built into Windows 95 are a number of tools to simplify administration. 32-bit versions of popular network clients, like Novell® NetWare® are included, as is support for standard transport protocols like TCP/IP and device standards. Plug and Play support detects hardware devices as they are added to the system, which makes installation a snap. And, with Server-based Setup and Batch Setup tools, it's now possible to install and configure Windows 95 on multiple desktops from a server. Automatically. Once you're wired, you can monitor performance and troubleshoot problems from a central location.

More support: more control.

System Policies in Windows 95 allow you to specify system settings and restrict network access and security privileges from a central location. So you can lock down desktop configurations whenever you see fit. And with User Profiles, individual users' desktop configurations are available wherever they log on to the network. This lets multiple users share one computer and "roving" users log on to other networked computers, while maintaining their own personal settings.

Again, with Windows 95, all of this can be done from a central location, reducing the number of on-site visits by 30 to 50%.[2] At last, you'll be able to focus on the big-picture stuff. So the next time someone asks you what's what with this Internet thing, you can say, *I have a plan.*

Productivity from the word *Start.*

The improved interface in Windows 95 makes nearly everything easier for novice and advanced users alike. Its Start button and task bar make applications more accessible. Long filenames make identifying files easier. Better tools such as Wizards and improved Help make learning features easy. Its right mouse button puts common commands a click away. And now that the separate Program Manager, File Manager, and Print Manager are gone, there are fewer concepts to learn. This makes for able, autonomous, and, dare we say, happy end users. People who require less training and support. Who, in short, can turn the desktop into the most tangible technology investment your company can make.

But Windows 95 isn't just easier, it's more responsive. Basic operations, like printing or accessing a file on a PC or over a network, are faster. And with its 32-bit multitasking capability, users can conduct file searches, online communications, or other tasks all while, say, editing a document. In fact, studies show that once users are familiar with the new OS, they're able to accomplish many tasks in about half the time it took under Windows 3.1.[3]

Of course, no one spends their entire day tooling around in their operating system. People have work to do. With that

1. WorkGroup Technologies, Inc., a market research firm, collected and analyzed the helpdesk logs of 10 Fortune 100 companies in order to project the impact of Windows 95 on call avoidance, problem resolution, and on-site call reduction. The logs represented 100,000 PC users and 1.5 million helpdesk calls per year. **2.** WorkGroup Technologies, Inc. **3.** To quantify the learning curve from Windows 3.1 to Windows 95, and evaluate user productivity on Windows 95, Usability Sciences Corporation, an independent usability testing organization, had 75 beginner, intermediate, and advanced Windows 3.1 users complete tasks with both operating systems. They found that users were 91% more productive with Windows 95, and 94% more accurate. Tasks performed included: finding and opening files and programs, copying and moving files, and switching between active programs. **4.** The MASIE Center, a recognized software training center and think-tank found that only one hour of briefing and two

The prevailing wisdom and why, this time, you should ignore it.

Common sense tells you to hold off on making the move to Windows 95, to wait until someone else finds the bugs. Well, someone else already has. With the largest beta program in history, Windows 95 was installed on more than a million desktops worldwide. Now, just six months into its commercial release, thousands of organizations are in pilot and rollout. And to keep them current, we've put together an online Service Pack with the latest drivers and other new components. In short, the dreaded "1.0 version" has already come and gone.

in mind, no evaluation of Windows 95 would be complete without simultaneously evaluating some of the 32-bit applications designed for it, such as Microsoft Office for Windows 95.

Now users can focus on their work instead of their software.

Office 95 is more than just fresh features on top of Office 4.x. It's a deeply integrated suite of applications. Integrated, both with the operating system and with each other. Because users can leverage their knowledge of one application throughout the entire suite, they need only three hours of training to be effective in all of them.[4] Needless to say, this can dramatically reduce training costs.

But what about support? While it's one thing to get PC users up and running, it's quite another to teach them all the skills they'll ever need. And of course, you can't; users simply aren't interested. (Remember? They've got work to do.) Knowing this has made all the difference in designing Office 95. It's resulted in advances such as the Answer Wizard, which lets users ask the computer plain English questions like, *How do I print sideways?*, and then shows them exactly how to do it. As a result, you can expect a 48% reduction in Office-related help calls.[5]

With Office 95, users are not only able to work on their own, they're able to accomplish more things faster. Labor-saving features such as updated AutoFormat and Spell-It in Word, and enhanced AutoComplete in Microsoft Excel, not only render everyday tasks automatically, they do so accurately. According to Kelly Services, the folks who train and supply corporations with over 325,000 temps each year, users complete their tasks 37% faster with Office 95. And they're 36% more accurate in doing so.[6] Not a bad day at the office.

Why sooner is better than later.

If, as the headline says, there's never a good time to migrate, why make the move now? Why? Because deployment takes time. Product reviews, network configurations, lab tests, pilot programs, rollout — it takes time. And if the goal is to decide *Is it worth it?* and you continue to put off serious evaluation, it'll be that much longer before you begin to realize the productivity gains and cost savings that Windows 95 and Office 95 have to offer.

But let's assume you upgraded today. How long would it take to recoup your migration costs? According to a leading consulting firm, Office 95 will pay for itself in 10 months in medium-sized companies, and 12 months in large organizations.[7] Factor in the increase in end user productivity, and those numbers fall by nearly half.

No question about it, the move to 32-bits is a big one. But as part of the larger evolution in chip architecture, hardware platforms, and application support, it's not one that you or Microsoft is making alone. Won't you join us?

Windows 95 or Windows NT Workstation? Yes.

Both products are strategic for your organization. Together they make it possible for you to deploy Win32®-based applications, reduce your support costs, and make your end-users more productive — across all your desktops. The right mix for your organization will depend on your business needs and constraints. For guidelines on how to pick the right mix, go to www.microsoft.com/windows/mix.

How to start.

To receive a free copy of Trial 95 — including guides for evaluation and deployment, resource kits, feature reviews, and, of course, copies of both Windows 95 and Office for Windows 95, each with a 90 day license — call (800) 583-0042, Dept. A017. Or visit our Web site at www.microsoft.com. All the backup for the studies cited here is included, along with an ROI modeling tool so you can plug in your own numbers.

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hours of self-discovery were required to migrate Office 4.3 users to Office 95. **5.** WorkGroup Technologies, Inc. **6.** Kelly Services, Inc. conducted a controlled usability study of 35 employees who regularly use Office 4.3. Participants were measured for speed and accuracy in completing commonly performed tasks. **7.** International Data Corporation modeled the expected returns on investment of Office 95 for large companies (1,000+ PCs) and for small-to-medium companies (100 PCs). On a cost-to-use basis, large companies will see their investment paid for in 12 months, small companies in 10. On a value-to-use basis, those figures drop substantially: 4.8 months for large companies, 5.3 months for small. © 1996 Microsoft Corporation. All rights reserved. Microsoft, Windows and Win32 are registered trademarks and Windows NT, the Windows Start logo, and *Where do you want to go today?* are trademarks of Microsoft. Novell and NetWare are registered trademarks of Novell, Inc.

Computer Industry

Briefs

More bad news for Apple Computer

When it rains it pours. Dismal news for **Apple Computer, Inc.** continued last week as **Standard & Poor's** lowered its ratings on about $300 million worth of Apple's debt to junk bond levels. The Cupertino, Calif., firm's stock hit an 18-month low of $29.13 on Monday, and its stock price has plummeted to almost one-third of its value since November. In the past month, Apple posted a $69 million quarterly loss and announced a restructuring and layoffs of 1,300 employees over the next 12 months.

R&D payout

Investment in research and development in the U.S. is expected to rise close to $174 billion this year, a 1.7% increase over last year's $171 billion, according to a recent *Battelle/R&D Magazine* forecast. Private industry will pick up the bulk of the tab, paying approximately $104.6 billion this year. The federal government, universities and nonprofit organizations will support the remainder.

Teleos sold

LAN switching vendor **Madge Networks, Inc.** in San Jose, Calif., last week announced plans to acquire wide-area network access switch vendor **Teleos, Inc.** in Eatontown, N.J., for about $165 million. The deal could be approved by the end of the quarter. Madge, which sells Ethernet and Token Ring switches, will enter the WAN access switch market via this acquisition.

He's baaaack

After resigning for "personal reasons" Jan. 18, Steve Appleton has reconsidered and accepted a reappointment as chairman, president and CEO of **Micron Technology, Inc.** in Boise, Idaho.

DEC abandons home PC market

Refocuses desktop efforts on corporate market, returning to more familiar ground

By Michael Goldberg

Digital Equipment Corp., which last year embraced the goal of cracking the top tier of PC vendors, announced its exit last week from the consumer desktop market to concentrate on commercial users.

"Up until now, we were growing by participating broadly in the [PC] industry in every market and every channel. Our growth was broad but thin. And I would rather be [narrowly focused] and deep," said Bruce Claflin, vice president of Digital's Personal Computer Business Unit.

The move means the Maynard, Mass.-based company will discontinue the Starion line of multimedia PCs aimed at consumers. That is a market where profit margins are about as thick as aluminum foil, and the Digital brand name is a lightweight compared with industry heavies such as Compaq Computer Corp., IBM and Apple Computer, Inc.

The Starion line, launched in November 1994 and sold only in the U.S., made up less than 10% of the PC business unit's revenue, a Digital spokeswoman said.

All this was stacked up against Digital at a time when it was changing its direct sales force model to rely on resellers and other indirect channels for much of its sales, said Nathan Nutall, an analyst at Giga Information Group in Cambridge, Mass.

"Digital has an easier road in terms of targeting corporations" where users already familiar with the vendor may buy many desktops at a time, Nutall said.

Claflin said Digital will push its High Note notebook computers and the Celebris and Venturis desktop models designed for corporate users, small businesses and people working at home. Claflin said these PCs would still appear in office and computer superstores that cater to business consumers.

Room for improvement

Digital this year plans to move up from its 10th-place standing in worldwide desktop PC shipments – even after dropping its consumer line of PCs

MARKET LEADERS DURING THE FIRST NINE MONTHS OF 1995

TOTAL UNITS SHIPPED – 33 MILLION

1	Compaq	3.04M
2	Apple	2.86M
3	IBM	2.53M
4	Packard Bell	1.97M
	Hewlett-Packard	1.34M
	AST Research	[illegible]
10	Digital	785,000

Source: International Data Corp., Framingham, Mass.

Know your strengths

Digital's decision to back out of the consumer PC market boils down to a company recognizing its market competency, said Shao Wang, an analyst at Smith Barney Shearson, Inc. in New York.

"DEC's strengths are more in the ruggedized commercial segment where its distribution channels are stronger. The consumer business in PCs values less some of DEC's traditional strengths, and they weren't generating [sales] volumes," Wang said.

In spite of the changes, Claflin said Digital's PC growth will outpace the industry. "Yes, we still want to be in the Top 5, but that isn't the highest priority. In these [commercial] segments, I want to be the undisputed leader or in the Top 2. We're on the same growth strategy, but it's a different way to get there," he said.

Java team breaks away from Sun

By Frank Hayes

Three high-profile members of Sun Microsystems, Inc.'s Java development team are leaving the company as Java shifts from a skunk works project to a full-scale product.

Senior staff engineer Arthur van Hoff, software architect Sami Shaio and marketing manager Kim Polese last week confirmed they will leave Sun's JavaSoft division to start their own company. The new firm will focus on Java development.

Analysts said the moves could cause minor delays in some Java-related projects, but they aren't a sign of trouble at Sun's newly launched JavaSoft subsidiary.

"If you were thirtysomething and you knew the secrets of the universe, wouldn't you shop it around to venture capitalists?" asked Michael Goulde, senior consultant at Patricia Seybold Group in Boston. "This is a signpost for Java moving into the next phase as it approaches the mainstream."

Java is a development system that was designed for writing applications that can be downloaded across the Internet via specially enabled World Wide Web browsers. Java lets these applications run without change on many different types of computers.

Polese, van Hoff and Shaio have worked on Java's development since its inception in 1990. They will form their company with Jonathan Payne, a former Java team member who left Sun in 1994.

Sources at and outside of Sun dismissed suggestions that the recent departures were linked to the appointment of Alan Baratz as president of JavaSoft.

"That's totally off the mark. We're losing three very talented people, but they're certainly leaving on amicable terms," said George Paolini, a Sun spokesman. "They're even taking time to finish up some projects."

Not the first to leave

In fact, Sun employees who have worked on Java have been leaving "all the time," said Patrick Naughton, creator of the original Java team and now vice president for technology at Starwave, Inc., a Web publisher in Seattle.

The departing JavaSoft employees said they intend to work closely with Sun and JavaSoft.

There are 80 people in the Java group, and that will grow to 100 by year's end. Only a handful of employees initially worked on a language for consumer electronics. The project then was refocused on set-top boxes for interactive television and finally on the Internet. "That's the one that stuck," Naughton said.

Slow brew

1991-1992: Java developed for consumer electronics, home control and personal digital assistants

1993: Java recast for interactive TV set-top boxes

Spring 1995: Java compiler is publicly beta-tested

Fall 1990: Sun forms Java development group

Spring 1994: Java recast again for Internet and Web browsers

January 1996: Java 1.0 released

Within a day

Special Advertising Supplement February 5, 1996

White Paper

GartnerGroup

Enterprise Resource Planning

The Changing Application Model

Part 1 of a 4-part series on Manufacturing Directions

As featured in COMPUTERWORLD and MANUFACTURING SYSTEMS

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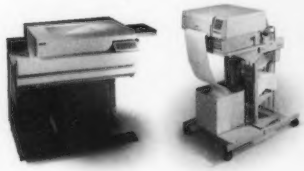

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Introduction

Moving Beyond Purely Transaction-Oriented ERP

First-generation enterprise resource planning (ERP) products are beginning to be employed by users seeking to balance operations across portions of the enterprise.

These products are transaction-oriented in the manner in which they deal with business practices and rules. But many of the newer ERP vendors (as well as the veterans) have begun to supplement their current approaches with a higher degree of decision support.

Therefore, both the nature of applications as well as the value of different portions of the application set will change radically over the next five years. It is imperative that users and vendors understand the changing nature of enterprise applications and plan for a different set of functional requirements to emerge during this period.

To do so will require that vendors incorporate new sets of functionality in their base product sets. In addition, vendors and users will focus not so much on the type of technology used but how effectively current technology can be utilized. The past fascination with ERP has been from a technology perspective. The future focus will be on how well functionality can be effectively utilized.

The next generation of ERP systems is upon us. Having made part of the technological change needed to get to ERP, we now must start using the given technology more intelligently. As its functional breadth continues to expand, ERP must also metamorphose into an environment that will be proactive in helping users solve their business problems. The key to an effective ERP solution is flexibility — flexibility to configure and reconfigure the system.

Other changes are in store. First, the functional model will move from a transactional focus to one that combines transactions and asset optimization. Second, because many vendors will be needed to reach ERP, there will be a vast change in vendor/user relationships. Third, the survival instincts of vendors will be challenged because the market's explosive growth will inevitably lead to a huge shakeout. The next five years will be exciting times.

Watch for the remainder of the 1996 Manufacturing Directions Series:

Enterprise Networking A Road Map for the Next Five Years	May
Supply Chain Management Strategies Needed for Global Success	August
Network & Systems Management Adopt for Change, or Get Out of the Way	December

This White Paper was produced under the direction of Erik L. Keller, who is vice president of the Applications of Technology Center at Gartner Group, a market research and consulting firm based in Stamford, Conn. He has 15 years of experience in industrial markets and, in his seven years with Gartner Group, he has worked closely with end users and vendors on long-term manufacturing strategies. Gartner Group is the leading provider of Information Technology Advisory Services.

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ERP's Next Wave:

Strategies for Avoiding Wipeout

ERP is a concept that Gartner Group, in conjunction with our clients, came up with five years ago to describe a set of enterprise applications for manufacturing companies. This application set was designed to balance disparate business functions.

Bringing the financial, manufacturing and distribution functions of manufacturing firms into balance is critical if these companies are to achieve the world-class quality which they deem essential to their survival. The margin for error in their highly competitive global environment is razor thin.

ERP provides a methodology for manufacturing firms seeking the state-of-the-art in computer-based management. The industry is currently witnessing the implementation of the first generation of ERP systems, an implementation marked by the successful deployment of an array of offerings using client/server technology.

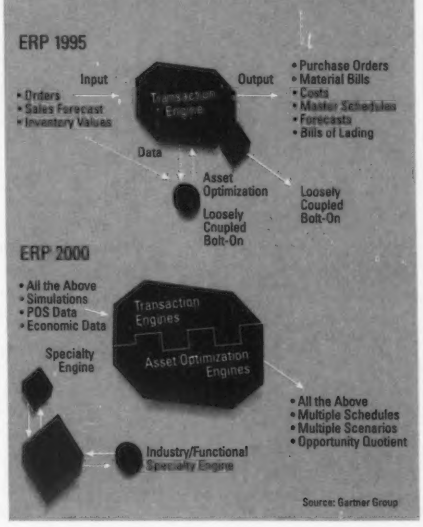
Soon, another generation of ERP applications will emerge. As the ERP application set moves forward, users will face two issues. First, they will have to examine how the functional requirements of manufacturing business solutions are going to change over the next five years. Next, they will need to make the critical call of deciding which vendors will thrive and which ones will disappear as the market goes through consolidation.

Before we take a closer look at the changes ahead, we need to establish what is meant by ERP. (For a fuller definition of the term, see the sidebar "ERP: More than MRP II on a politically correct platform.") Then we need to determine what the most important issues are regarding ERP, as well as how the functionality of this application will change.

As this White Paper is being written, major changes are afoot in the ERP realm that will change the very nature of the applications users will tap into. Many of these changes are being caused by sig-

FIGURE 1

A New Notion of ERP Functionality



nificant business problems facing users; nevertheless, the ability of users to solve these problems with differing functionality is made possible by an enhanced technology model.

Even with this emphasis on new technology, many software products have been announced in the past two years that have delivered legacy-style functionality on new architectural platforms. In general, these applications have been transaction-oriented. The desire on the part of IS to obtain Oracle or client/server technology "trophies" has overshadowed the need of many R&D organizations to use the new generation of tools to bring even higher levels of productivity to end users.

Move to asset optimization applications

Currently, a new breed of applications is appearing in isolated market segments. These "asset optimization" applications will alter the notion of ERP application functionality. In fact, by the year 2000, asset optimization applications will supplement transaction-oriented systems.

The manufacturing applications that are prevalent today focus on transactions (i.e., data that is input, such as a customer order, generates a transaction, such as a materials requisition, which is used by a business). Transactional systems are essential. But the data and information that they deliver must be manipulated by users (often with great difficulty) if they are to meet the requirements of their businesses. The decision support, or optimization, abilities of such applications are extremely limited. As a result, many users are seeking a different type of functionality as an adjunct to their transactional approaches (see Figure 1 on the previous page).

Wanted: broader focus on assets

Enterprises want to optimize the way they use assets. Unfortunately, the software vendor community has done little to help them do this.

Granted, vendors of maintenance management software (e.g., TSW and PSDI) market themselves as "asset management" vendors. But in actuality, they focus on equipment use and maintenance, not equipment optimization, and their applications focus on the transactional behavior of equipment use. By focusing on not only capital assets but *all* assets — customers, suppliers, capital resources, materials and labor — users can decrease costs and increase opportunities across the enterprise.

Asset optimization systems also examine a broad range of assets, a range broad enough to cross functional boundaries (e.g., engineering and manufacturing). Most transactional functions have an optimization counterpart. In current asset optimization packages, only a few transactions are optimized. In addition, the granularity and the type of optimization vary so much that few companies have directly overlapping products. In the next 10 years, however, all functions will have a hybrid transaction/optimization component.

Enterprises want to optimize the way they use assets. Unfortunately, the software vendor community has done little to help them do this.

Unfortunately for users, asset optimization functionality will take time to mature. The lack of widespread success of asset optimization systems is due to three factors: their high price, their inability to integrate with transaction systems, and a lack of market awareness of the products as well as an understanding of what they do.

Of these three factors, pricing is the biggest obstacle. The vendors that offer asset optimization packages charge license fees that are as much as 10 times higher than the packages offered by their transaction-based counterparts. Typically, fewer users within a company make use of such capabilities, but if vendors want this area to grow, this price differential must go down over time.

Many enterprises now find themselves addressing the issue of integrating transactional and asset optimization packages. In most cases, users of asset optimization packages find it difficult to capture real-time transactional data. Because it takes many hours to download large transaction sets, many users are forced to base their optimizations on data that is days or even weeks old.

Vendors are just now beginning to work on programs that better couple transactional and asset optimization packages. But this problem will probably persist for at least the next five years.

The final part of the problem is that only a handful of users truly understand asset optimization applications or their potential. This part of the problem is easy for users to ignore because vendors of transactional functionality often claim that their products have asset optimization characteristics.

Users should examine asset optimization — either as it is offered by their transactional vendors, or by looking at third parties that are associated with transactional approaches. (By the way, this area should be considered medium- to high-risk, because over the next five years, many vendors selling applications in this space will likely either be acquired or else go out of business.)

All of these occurrences point to another trend: for users to think "out of the box" and re-examine the methods now used to solve business problems. Unfortunately, much of the market for business applications software has so far been somewhat insulated. Until now, we have looked at the functionality and the approach from the dogma of APICS (American Production Control and Inventory Society), rather than from a broad perspective. In general, the market for transactional business applications has failed to leverage off other areas in manufacturing, let alone other areas in the business world.

Taking the broader view

ERP providers and users need to explore new areas. This will require that they expand beyond the traditional set of functions. Are there concepts used in other areas that would better our business processes? Here are a few examples.

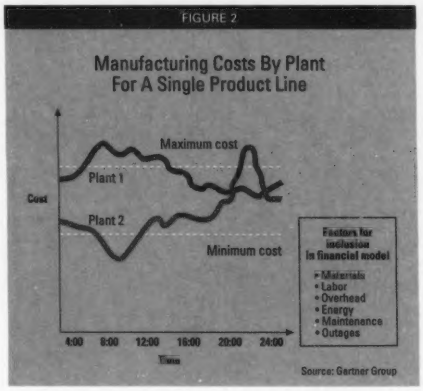
How do users today determine if their plants are doing well? They can do so by various costing methods or by ABC analysis — there are many different metrics. But all these metrics tend to be reactive. In other words, they deal with the past, rather than current or anticipated events.

For instance, when a user takes a close look at one of their manufacturing facilities, how many times have they thought that they delivered product on time, had good utilization of their equipment and accomplished all the things that were supposed to be done? But at the end of the month, the plant had lost money. And that user had no idea why.

To address this problem, this user needs to take a tip from the process control world and use statistical quality techniques to look at manufacturing cost. For instance, if manufacturing cost is looked at by plant for a single product line, a cost analysis can be set up in which there are a maximum cost and a minimum cost (Figure 2).

In Figure 2, there are several instances where the cost is higher than the users thinks it should be. Why does this happen? Well, perhaps the person working on the shift at the time is not properly trained. Perhaps a machine tool broke. Perhaps, at plant two, costs dipped below what they should be at that time. That's good. Or maybe it's bad. Maybe it's because someone failed to maintain a machine properly, and what that means is that there are going to be quality problems somewhere down the line.

FIGURE 2



This approach represents a different way of viewing a problem. Such analysis is not rocket science. Gartner Group got this idea from a technology demonstration that was done in the late 1980s by Oracle Corp. and Allen Bradley, who set up a prototype of this. So the technology is clearly available.

The real issue with ERP moving forward is thinking "out of the box" from a functional perspective to understand how the technological advances of the

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ERP: More Than MRP II on a Politically Correct Platform

What is ERP? ERP is not just MRP II (Manufacturing Resource Planning) on a politically correct platform. ERP represents a broad spectrum of functions that encompass many different business entities. It requires functional and organizational depth across a variety of enterprises so that it can be used to examine and model a single conceptual enterprise.

As a result, users have to examine vendors in the ERP arena not only for traditional application functionality but also for their application scalability (not to mention how well the applications offered by third partners scale).

In terms of supply chain management, ERP involves looking at the connection between suppliers, manufacturers, distribution and customers. Because of the continually decreasing time between a customer orders and the subsequent delivery of the product, suppliers are being called upon to do much more than ever before. As a result, many support groups are out of sync with the primary function of making and delivering the product.

ERP will give each of these disciplines a view into the entire supply chain so that all groups can work together and understand their common goals. This type of methodology is fairly common in concurrent engineering practices where a variety of disciplines are brought together.

Some suppliers, for example, are designing unplanned products for customers at a moment's notice. ERP will permit both supplier and manufacturer to respond quickly to customers' requests for quotations or any other customer needs.

During the next five years, the view of a supplier's manufacturing enterprise will become as clear as that of a captive manufacturing facility. Customer orders will increasingly be bid to a variety of internal and external manufacturing resources.

As a result, suppliers will need to become involved in all aspects of ERP functionality. They will, in essence, have the same demands placed upon them as are placed upon their customers. Companies that cannot become flexible partners with their customers will be in big trouble.

Distribution is often the neglected link in the manufacturing supply chain. ERP will help companies determine whether it is better to fill an order from existing stock or build it from an underutilized manufacturing facility or supplier.

Costs, transportation requirements and other orders must be taken into account. In addition, the internal management of distribution facilities will also need to be further optimized so that each facility can respond in a predictable and timely manner.

The key for users looking at ERP products is that they must examine the system from the perspective that it assists in dynamically balancing and optimizing financial, manufacturing and distribution resources. It is not MRP II on an open systems platform. ERP represents a combination of application types. In the future, this will allow the system to become a proactive agent for manufacturing entities.

Despite the significant differences that exist between ERP and MRP II, there are also many similarities. ERP can be said to represent a rough superset of functionality to MRP II. Many common modules, such as inventory control, general ledger, accounts payable and materials requirements planning (MRP), are part of an ERP package.

What is perhaps most significant about ERP, however, is the interrelationship of all the different modules within the confines of MRP II as well as those modules that extend beyond the traditional focus. In addition, as business conditions change — as the need of the manufacturing world for realtime information continues to accelerate — certain modules in MRP II will have little use in ERP.

For instance, many of the functions in advanced forecasting have little use in the JIT/Kan-Ban type of manufacturing operation in which orders are filled in days. Also, modules such as shop-floor control will need to be extended into the Manufacturing Execution System (MES) area to be useful. These are just a few of the coming changes that will appear with ERP.

past few years can be utilized by corporations trying to solve business problems. Vendors have done a good job addressing some of the technological challenges of ERP, but they have not done as well addressing the functional challenges in the systems.

Holes that won't go away

Gartner Group continues to see gaps in four areas of ERP: product configuration, flow-based manufacturing, logistics and rule-based scheduling. We do not believe that most vendors will adequately address any of these areas in the next 12 to 24 months. (Although we have not mentioned the functional integration of MES (Manufacturing Execution System) vendors in the context of functional enhancements, it too is a pressing need.)

In the next three years, as mass customization increasingly becomes the rule in manufacturing companies, all ERP products will need to incorporate the type of capability now associated with product configurators.

Product Configuration: The proliferation of highly flexible and expandable product families are causing manufacturing firms to move from a make-to-stock mentality to an assemble- or engineer-to-order approach. Even process-oriented manufacturing firms are finding that diverse packaging requirements are creating lines that have batch, repetitive and ATO (assemble-to-order) personalities.

Many companies have built product configurators around features and options, but the sheer number and variety of business, distribution and manufacturing rules have rendered these products inadequate. A few suppliers of ERP systems have product configurators that Gartner Group clients have reviewed favorably, but many of the more robust configurators are offered by niche vendors. In the next three years, as mass customization increasingly becomes the rule in manufacturing companies, all ERP products will need to incorporate the type of capability now associated with product configurators.

Flow-Based Manufacturing: Some powerful concepts have recently begun to take hold in the manufacturing arena when it comes to flow-based manufacturing. These concepts have led many companies to examine whether they can minimize or eliminate traditional MRP II types of planning, scheduling and tracking mechanisms — and if so, how.

In addition, some users have attempted to implement flow-based manufacturing with work-order-based systems . . . but have met with little success. In an attempt to meet the requirements of flow-based manufacturing, many companies merely create a work order with a quantity of zero. In this instance, the application must be restructured to operate in a mode that does not include work orders yet is still able to deal with those areas of the factory that will still have a job-shop focus.

Logistics: Although many users seek the "Holy Grail" of logistics, few ERP vendors have risen to leadership status in this segment. In fact, no ERP vendor has been able to meet the complex needs of users when it comes to distribution, transportation and general logistics planning. This product dearth is especially true for consumer goods companies that require tighter links with distribution depots and large retailers.

The need to link retailers, sales, customers and transportation companies is growing rapidly, and this area has great potential. Over the next five years, users will make large investments in logistics to make up for decades of neglect. During that time, the only options for an organization that wanted to increase its productivity in logistics were to buy more forklifts or hire more staff.

Rule-Based Scheduling/Planning: The aforementioned functional needs, as well as several other business issues, are causing the traditional MRP II planning and scheduling engines to become passé. Their inability to change dynamically in the face of ever-changing business conditions has undercut their usefulness. Today's demands for flexible manufacturing and product diversity with quicker time to market, higher quality, regulatory compliance and increase customer satisfaction have outstripped the abilities of MRP II systems.

In the next five years, planning and scheduling will shift to a more fine-grained, rule-oriented paradigm. Older MRP, MPS and CRP engines will either need to be dismantled or supplemented by a new breed of tools.

In the second half of 1995, new boutique vendors started to introduce the planning and scheduling products that will become mainstream over the next five years. This technology, when integrated with the order-entry process so that accurate and timely available-to-promise customer shipments become the rule rather than the exception, is a hot item for Gartner Group clients today.

The same can be said of increased capacity utilization. Many vendors in the ERP arena are exploring whether to buy this technology or build it into their systems. Users should force their vendors' hands to make them divulge how they plan on providing for this functionality in the future.

When it comes to business applications, the selection of ERP is still driven by the two areas traditionally evaluated by users: functionality and technology. However, the breadth of functionality within ERP now encompasses areas that were outside the ERP selection process only a few years ago.

Users must re-evaluate their decisions and examine issues based on the functional value of the application set over time (see Figure 3). Through such criteria, users can begin to see how decisions made today can affect future initiatives. Users should also realize that the ERP solutions of today will not be able to entirely solve certain business problems.

Short-Term ERP Values (0-2 years): In the next two years, global single-vendor standardization will be the largest perceived value for many firms embarking on an ERP process. Many of our clients continue to be frustrated by the myriad of systems and architectures scattered throughout their enterprises. Lack

Manufactur

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of data, the cost of maintaining older systems, "year 2000" issues, and a lack of software flexibility are just four of the reasons users are seeking new systems. To minimize confusion and to leverage corporate resources and data, many users have turned to standardization.

A related issue involves the supply chain. Although no single vendor can provide a total solution for the supply chain of any given manufacturing industry, many users continue to view an ERP system (particularly from a transaction perspective) as a backbone software solution into which other synergistic suppliers will be plugged.

Medium-Term ERP Values (2-4 years): Over this period, supply chain management will continue to be a focus for manufacturing enterprises. However, global single-vendor standardization will become less important. Two factors will cause the decline in standardization: the realization that no single vendor (software product) is suitable for a wide variety of manufacturing styles (vertical industries) and different size enterprises; and the maturing of object wrapper technology that can encapsulate and provide better interfaces among a variety of systems.

In this time period, supply chain management will become a rallying cry among enterprises that, being only loosely linked with customers and suppliers, find themselves at a severe disadvantage (and possible business failure). At the same time, these links between suppliers and customers must be extremely flexible and dynamic to change.

Long-Term ERP Values (4 years and beyond): In the long term, the focus on supply chain management will give way to a focus on concurrent logistics, in which manufacturing firms must alter and optimize the way they move and manage goods.

The ability to provide an integrated transaction and asset optimization engine will be the main re-

ing Control

To get and maintain control over your manufacturing operations, you need to put your business in perspective—distribution, inventory, marketing and finances all play a part in the big picture. And because you need to carefully orchestrate a multitude of activities, like inventory planning, production scheduling and puchasing, you need an integrated manufacturing system. One that can help you make informed decisions, and increase your productivity and profitability.

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quirement of vendors. Meanwhile, the focus on creating better distribution and warehousing systems or scenarios will rapidly decline as manufacturers begin to bypass traditional distribution routes and go directly to the customer via online and outsourcing partners. Because of the focus on mass customization and leaner inventories, traditional scheduling engines will be replaced by constraint-based approaches in the ERP system.

These approaches will help users deal with a rapidly changing, shorter time-to-customer set of products. Currently, ERP vendors are coping with this need by forming partnerships with smaller players that focus on optimization. But in the next three years, major ERP players will provide their own version of this functionality to address users' increasing demands for asset optimization.

Re-evaluation needed

As ERP packages evolve from a transaction-only orientation to focusing on both transactions and asset optimization, users will be forced to re-evaluate the value they obtain from different functional areas. When users pick an ERP software provider today, they must ensure that the continuing value of the application set matches their evolving needs. For long-term survival, ERP vendors must ensure that they are not merely rebuilding an old-style transaction engine on a politically correct technology platform. They must rebuild the application from the ground up to reflect the changing value scheme of an enterprisewide application.

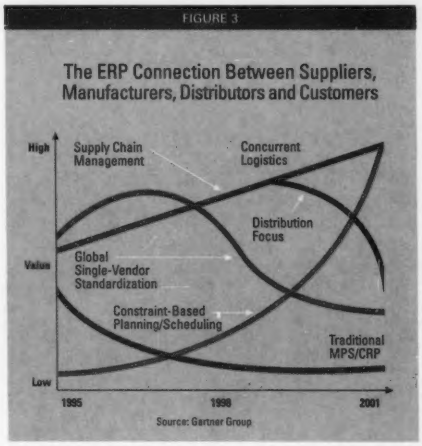
All these changes in technology (which we have focused on in the past) and functionality (which we will focus on in the future) imply a rapidly changing market. As a result, the question of how the marketplace for ERP will change over the next five years is a critical one for users.

The ERP marketplace is one that will be very robust. In 1995, the software and services revenue from the primary ERP vendors will grow by at least 20% to somewhere between $3.5 billion and $3.7 billion (Figure 4). However, this figure can be misleading, as it does not represent the total market, which includes content from third-party suppliers (hardware, consulting, systems integration, etc.).

Many ERP software providers are disassociating themselves from services and are giving services to third parties, such as the Big Six or other large systems integrators. Even though Gartner Group expects market growth to be more license-driven than service-driven, the overall opportunity will be many times larger.

Such market growth is not necessarily great news for all companies. Over the next three years, the market will be in a shakeout mode, due to the vast technological and functional changes demanded by users. More than half of today's ERP vendors have a variety of efforts (both public and non-public) underway to exploit object-oriented technology in their next generation of applications. As this type of development tool becomes more widely used and applications are more widely deployed, the ERP market will undergo a fundamental shift that will leave no vendor untouched. However, this disruption will not happen much before the year 2000.

FIGURE 3



Supply chain synergy

With the acceptance of ERP, many manufacturing firms have accelerated their search for an application or series of applications to integrate a variety of business processes. Many manufacturing firms are looking to create synergy across their supply chains (or to build concurrent business processes), which

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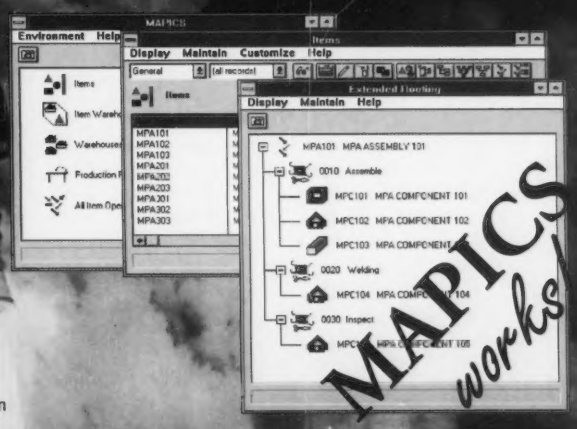

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FAQs (Frequently Asked Questions) About ERP

***Q** What steps are required to move from an MRP II system to a successful ERP implementation?*

A Gartner Group believes that the first thing users need is buy-in across the corporation. Since ERP will cross many of the traditional (and artificial) boundaries that users have established, they must be willing to look beyond what is in place and challenge organizational norms.

Once users understand this, a cross-functional team should be assembled with management representation so that all the business, technical and functional issues can be put on the table for discussion. At this point, users can map out their business rules and processes of today and those needed in the future.

Business process re-engineering (BPR) should also be considered. Concomitant with this process is a technical evaluation and plan so that every business unit can work within an ERP framework.

***Q** What are the trade-offs of single-vendor vs. multiple "best-of- breed" vendors for ERP?*

A The broad functionality required by ERP challenges manufacturers that want an integrated approach across business units. The application modules in a single-vendor solution may be tightly integrated, but such solutions generally address only some ERP functions well.

As a result, some users try to configure an a la carte solution from multiple vendors. But the integration is easier said than done.

Users should know the three main trade-offs with multivendor ERP solutions: time, cost and responsibility.

Time. If the integration takes too long to implement, the business benefits from ERP are negated. Integrating two or more applications means more than getting them to work together; it implies a shared data model, a common GUI, the use of a compatible toolset, and realtime data and messaging feeds.

Users should try to minimize the number of technology platforms (i.e., operating systems, DBMS) to be integrated. Also, no more than four software vendors should be considered.

Cost. Multivendor ERP solutions are usually more expensive than single-vendor solutions. They often require the use of a systems integrator, and best-of-breed vendors are often small boutique shops that do not ship in volume and often have higher per function-point license fees than vendors selling larger suites of products.

Interoperability responsibility. In a multiple-vendor environment, users must ensure that all the integration between the modules is under warranty, so that it appears as if a single solution is being delivered. Another issue is upgrade responsibility. If the main vendor in an application suite upgrades to a new platform, users need a guarantee that its partners will upgrade their modules as well.

***Q** What is the best way to integrate applications from different ERP vendors?*

A There are six approaches, but none solves all integration problems.

1) Writing 3GL links between applications. Cobol and C links are the typical way to interface two applications. But links do not scale well (in terms of being able to maintain code) if many vendors are integrated.

2) Standard application programming interfaces (APIs). This works well for one-way batch transfers of data. APIs, however, are proprietary and thus difficult to support between multiple vendors with different APIs.

3) Facilities within a RDBMS. Stored procedures and triggers will be a mechanism for application integration for a few more years. Their disadvantage is maintainability.

4) Remote procedure call standards or proprietary calls. These involve the same pitfalls as standard APIs.

5) Links to Microsoft Object Linking and Embedding (OLE). These links are useful for client-oriented applications, but they are not enterprise solutions.

6) Object wrappers. Because this technology is relatively new, object wrappers are still relatively expensive. However, they represent a step toward easy, more maintainable integration.

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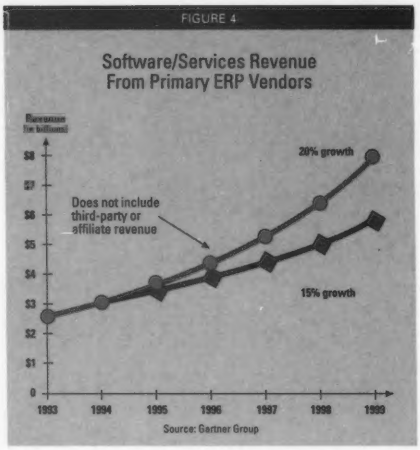
FIGURE 4



are all different and industry-dependent.

To create such a connection, however, these companies need tightly integrated functions. They have two choices: they can either buy an array of wide (but perhaps not deep) functions from a single vendor, or they can implement a best-of-breed approach from multiple vendors.

The Object Management Group and the Open Applications Group have tried to set standards, but both organizations are a long way from delivering specifications that will be widely used to integrate business functions from multiple vendors. Most software vendors realize they must either form a tight partnership with a limited number of complementary software vendors, or add a great deal of functionality to their product lines. Today's technology models conspire against the first, and, for most vendors, the lack of R&D resources dictates against the second.

This is why dramatic changes are in store for the vendor arena. There are about 500 ERP/MRP II companies worldwide today (Figure 5), but over the next five years, that number may drop to perhaps 50 ERP companies or consortia, because most of them will not be able to address the necessary technological and functional issues.

Furthermore, in the next three years, more than half the total market could conceivably be represented by a handful of companies — perhaps as few as four or five. This shakeout will coincide with three occurrences: the maturing of object-oriented tools capable of enterprise applications development; the widening of the base of experienced programmers; and the availability of object frameworks that will permit many different software vendors to plug into the ERP framework.

Expansion and contraction

Just as a myriad of PC software companies have been able to flourish, the business functions supporting ERP will expand not to just a few application providers but to a wide range of them. Instead of 50 providers, between the years 2005 and 2010 there may be as many as 5,000 vendors that can plug their best-of-breed functions into the limited number of available frameworks. The applications will run anywhere, but mostly on inexpensive PCs. Systems integrators (or industry-specific application vendors) will assemble complete, custom-built systems from this array of objects.

Vendors must begin to prepare for this coming shakeout, and determine how they will evolve as they pass through the market funnel. A much tighter focus (functional and industry-specific) will be essential; so will partnerships.

Users should expect that the shakeout will continue for the next three years. This shakeout will be followed by a degree of transition slowdown, and then an accelerated wave of vendor expansion in the five to 10 years after that. Users should consult with their vendors to understand their long-term plans.

Changes will also take place in the focus of vendors. The segment of ERP users with the most visibility, which Gartner Group refers to as Tier 1 (enterprises with more than $1 billion in annual revenues), is closed to new vendors. This segment will consolidate around four to seven vendors who could garner 90% of the new sales in this segment in the next three years. However, opportunities are wide open for Tier 2 and Tier 3 user accounts. Most vendors should begin to focus on areas where they stand a better chance, and should create marketing, functional and sales "firewalls" around their products to prevent Tier 1 vendors from attacking.

The ERP market is segmented by enterprise size

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and functional fit. The three tiers of enterprise size are those with more than $1 billion in annual revenues (Tier 1); those with $150 million to $1 billion (Tier 2); and those with under $150 million (Tier 3).

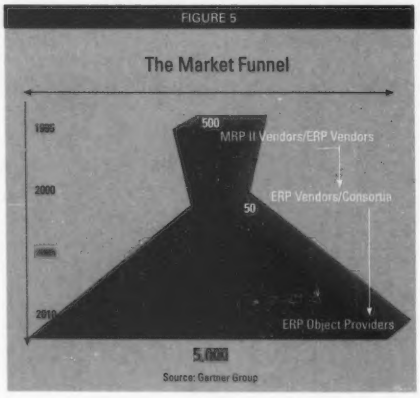
Most demanding users

Tier 1 users are often the most demanding because of the deep functionality they require, their large user populations, and their complex and extensive manufacturing and distribution methods. The leader in this market, SAP, will continue to lead for the next five years. (While SAP and its partners are challenged to meet demand to implement the R/3 package, there are no competitors that can dislodge it in the short term.) However, Gartner Group believes that SAP's growth will slow and other competitors will emerge in the next 12 months.

Because SAP has set such high standards, only a few other vendors have the resources and vision to compete for 80% to 90% of all Tier 1 business: Oracle, Baan Co., System Software Associates, J.D. Edwards, Marcam Corp. and JBA Holdings. Not every Big 4 AS/400 vendor will be a viable Tier 1 player in the next three years, but all have a good chance.

There will be exceptions to these trends. A few leading-edge Tier 1 enterprises will opt for functionality-poor, technology-rich solutions from small vendors. Some may choose a small, local vendor as a solution for a small plant.

FIGURE 5



All Tier 1 vendors compete for Tier 2 business, but some of these vendors' costs are too high for smaller enterprises. In these cases, excellent local support, scalable technology, and closely fitting functionality are required.

Tier 2 will be the largest battleground in the next five years. It will not consolidate as much as Tier 1, but there will be fewer than 10 key vendors beyond the Tier 1 vendors for each geographic region (e.g., the Americas, Europe or Asia) that will hold a composite 70% to 80% of the entire market.

The Tier 3 market, which is populated by small, undercapitalized vendors, could offer the most promise for the "killer" ERP application. Cost effectiveness, ease of installation, distribution and a native Microsoft infrastructure are keys. No products yet exist that meet these criteria, but they should emerge in the next 24 months.

Coping with major changes

Functional restructuring and vendor realignment will be the two biggest changes in the marketplace. To cope with these changes, users have no alternative but to consider configurability and flexibility when evaluating systems. Not only do users need to be able to configure the software quickly to meet their business needs and implement it quickly, but the software itself must be flexible so they can change it dynamically. Software that is inherently flexible has a good chance of long-term survival.

This flexibility will foster the ability of users and vendors to seek new approaches in the way in which business processes are enacted. Over time, the number of users of these systems should drop, as we begin to automate more approaches and embed more and more intelligence within the application. So let's not look at pure transaction engines, but at composite transaction asset optimization engines.

Our last caveat to users is this: Get ready for change. The marketplace is going to change very dramatically over the next five years. There will be some vendors who are very big winners (there already are) and some very big losers. Users need to understand all these issues and insulate themselves as they implement ERP on a local or global basis. If they fail, they will find themselves wiping out on the next wave of ERP.

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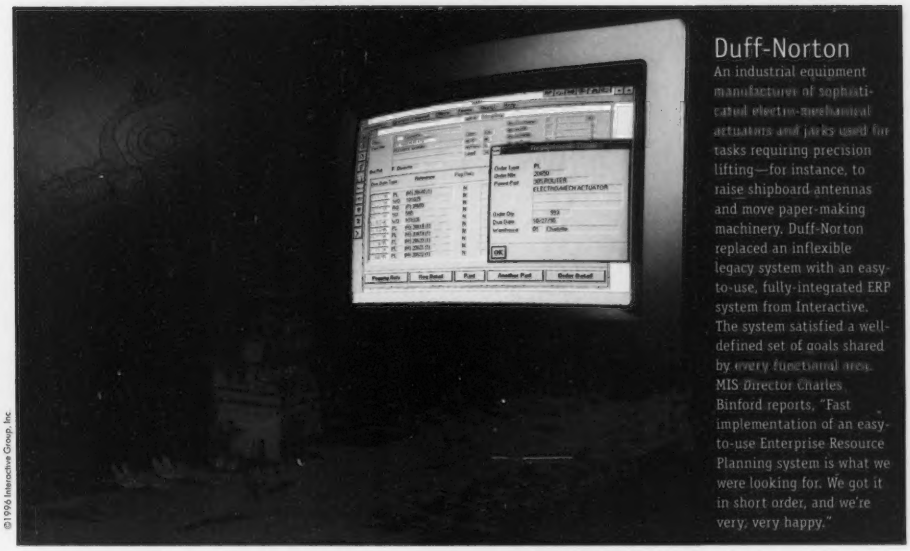

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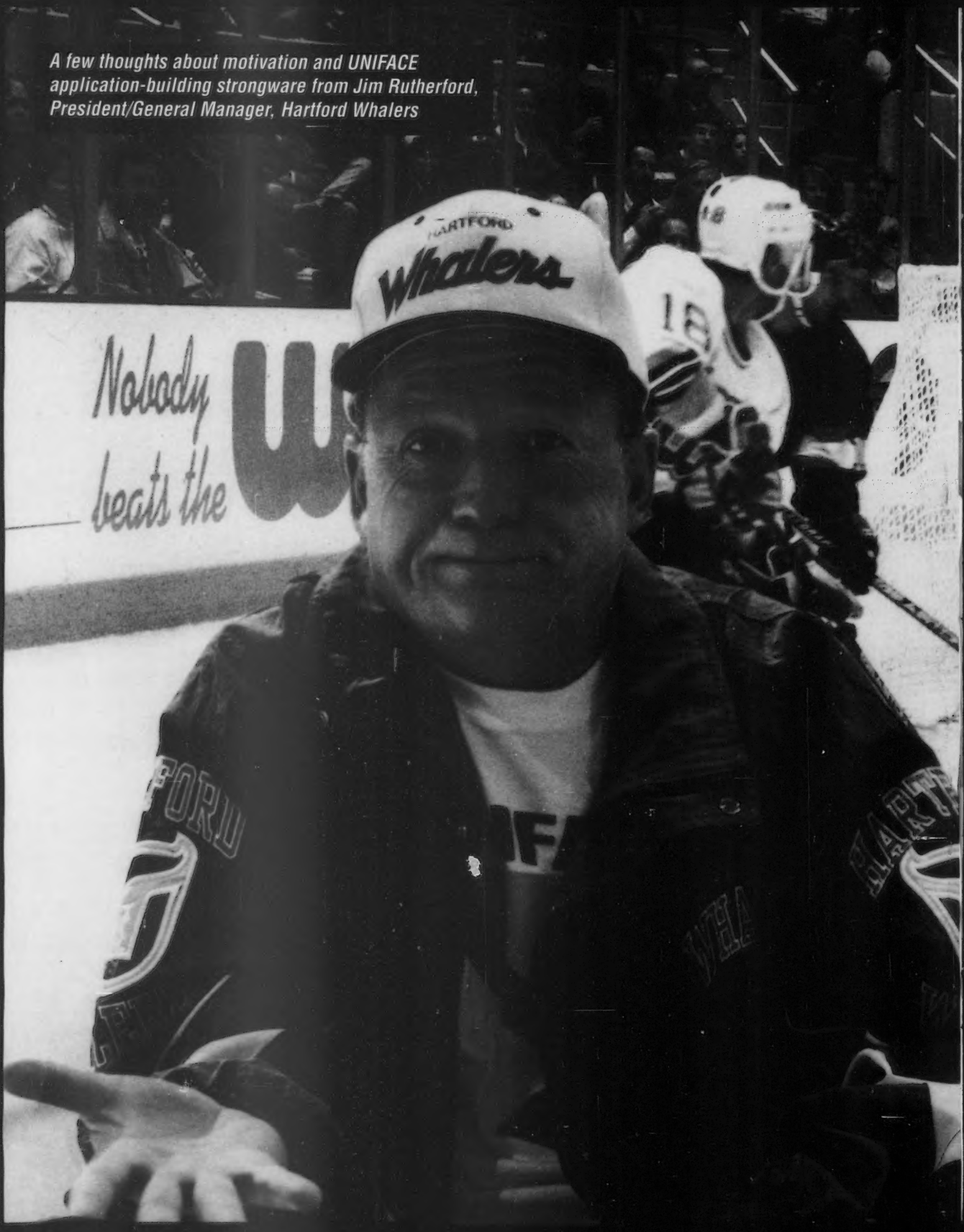
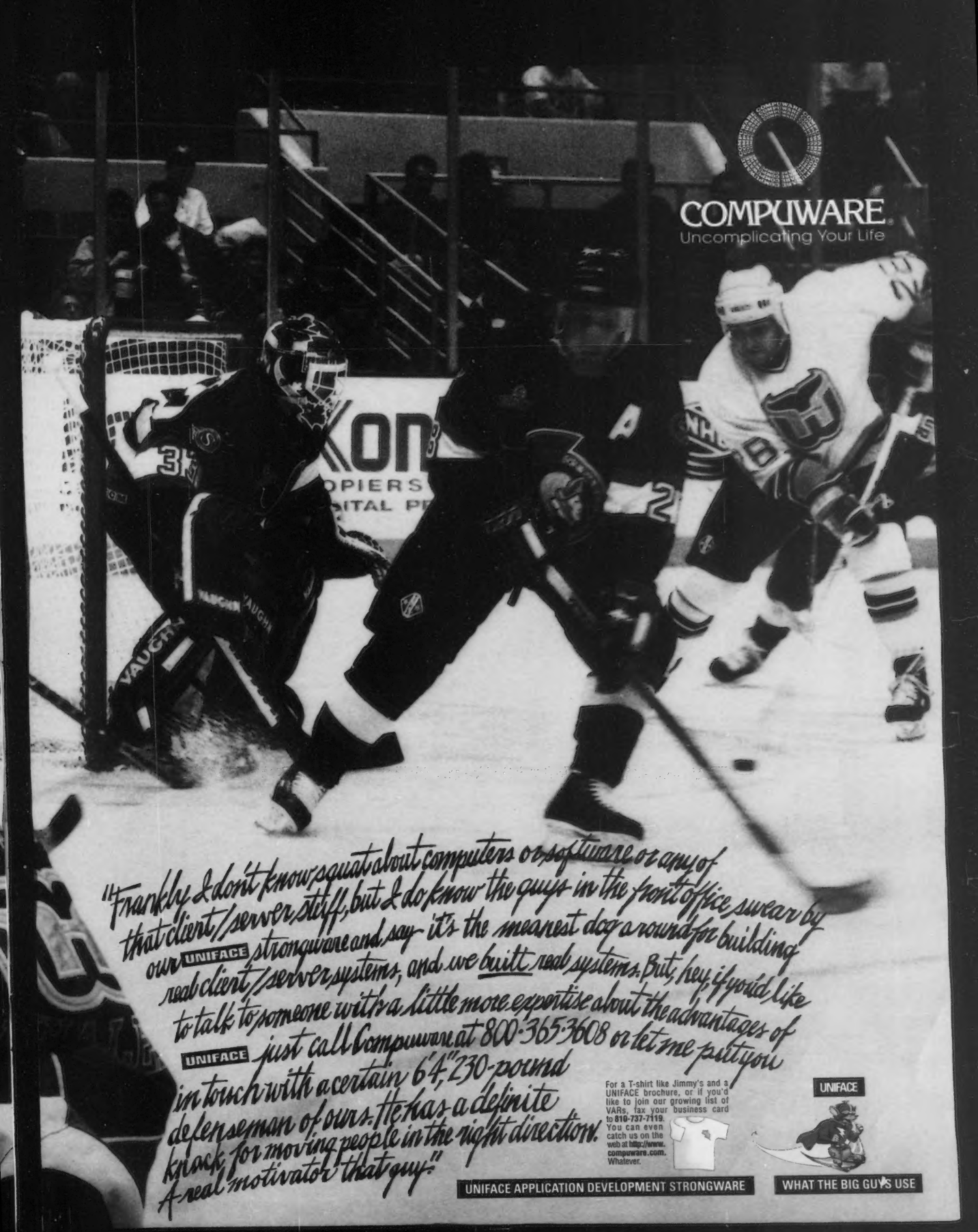


A few thoughts about motivation and UNIFACE application-building strongware from Jim Rutherford, President/General Manager, Hartford Whalers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WHAT THE BIG GUYS USE

Noorda's folly

The sale of Novell's once mighty WordPerfect subsidiary to Corel ends a sad episode for Novell and its customers.

Regardless of what becomes of the WordPerfect and Quattro Pro product line, the whole fiasco has hurt Novell deeply and ultimately will damage the company's ability to enhance and invest in its product line just when it needs all the resources it can muster.

The structure of the deal makes it hard to say exactly how much Novell lost on the sale of WordPerfect, but let's use a conservative estimate of $650 million. For $650 million you could do any of the following:

- Pay New Jersey's welfare bill for a year.
- Buy all the advertising on NBC for the Summer Olympics.
- Buy Corel at market value.
- Equal 3M's entire annual audiotape and videotape business.
- Build the Universal Studios theme park in Orlando, Fla.
- Buy 28 F-16 fighter jets, four Boeing 747-400s and two Aegis Destroyers.

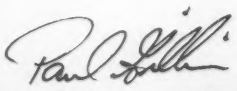
Or, if you were Novell, you could pay for 21 months of product development. You could invest heavily in customer support, distribution channels, programs for third-party software companies and marketing. You could spend more than the ninth-largest software company generates in sales in a year.

It's one thing to make a bad business judgment based on the best data and intentions. It's another to throw money down a hole when your investors and advisers are pleading with you not to. Former Novell Chairman Ray Noorda ignored the best advice of his investors two years ago when he grossly overpaid for WordPerfect in a futile effort to become another Microsoft.

Novell customers will be the big losers. The money Novell paid to a handful of Utah entrepreneurs came directly out of enhancements to the products and services with which users run their companies. Novell has spent the past two years mopping up from its aborted run at Microsoft. In the meantime, Microsoft has polished Windows NT to become a credible alternative to Novell's NetWare. The WordPerfect acquisition has been called Noorda's folly. It was a diversion that dearly cost that company and the users who rely on Novell.

* * *

Thanks to *Computerworld* research analyst Laura Hunt for the financial statistics.



Paul Gillin, *Executive Editor*
Internet: *paul_gillin@cw.com*
http://www.ultranet.com/~pgillin

Letters to the editor

Is success so wrong?

I must respond to the viewpoint espoused by John Davidson in reference to Microsoft's bundling of TCP/IP in Windows 95 ["Microsoft endangers TCP/IP standard," CW, Jan. 15].

It has amazed me that certain people attempt to convince the world that the inclusion in any new Windows release of any new feature traditionally provided by third parties is an attempt to take over the computer world. I have been in the PC world since it started, and I have seen the utter chaos of having no single standard.

Healthy competition ensures that end users get the best possible product for their investment. But to attempt to argue that bundling TCP/IP with Windows 95 endangers the standard is ludicrous. Davidson could serve this industry better if he quit attempting to persuade the rest of the world to see his demons and got down to the business of providing the end users what they expect.

Just because Windows 95 has high market share should not expose Microsoft to different rules than the rest of the industry. As long as what Microsoft is doing is within the rules, you can't penalize it for being successful.

Michael C. Kemp
Delphi Computer Systems
Reseda, Calif.
KempM@sylmp002.allied.com

Out on a limb with a crystal ball

Jerrold M. Grochow's article "Client/server's future is on the Web" [Dec. 26, 1995/Jan. 2, 1996], was a real yawner. I expect bolder predictions from such a distinguished technologist. Here are the wild predictions I think he should have made:

- ATMs will be able to connect users to their bank of choice and execute real banking transactions, thereby becoming ubiquitous Web kiosks. (But you still won't be able to deposit money out of your home state.)
- A new class of Internet apps called "nodules" will be defined that sit on either a client or a server or middleware. Spiders, robots, agents and viruses will be reclassified as nodule types.
- TCP/IP will begin to be replaced by a newer protocol that creates confusion and new revenue sources for everyone.
- Video will have its own protocol defined to get around the limits of HTTP in streamed data.

Wanna keep score, Jerry?

J. D. Chandler
President
American Technology Services, Inc.
Falls Church, Va.
chandler@collage.com

Control your urges

Regarding your article about Kevin Mitnick ["In the Mind of 'Most Wanted' Hacker, Kevin Mitnick," CW, Jan. 15], Mitnick is a criminal, plain and simple. If someone breaks in to my house for the adrenaline rush and then leaves, I would prosecute him as I would a thief. From the excerpt that you published, you seem to be praising Mitnick. If he had any morals, he would control his urges. Tens of thousands of computer systems administrators could easily copy his devious acts. We, however, can control our evil feelings.

Mitnick is what we computer gurus refer to as a cracker, not a hacker. It is my personal belief that Mitnick is a criminal. By praising him, we are creating more like him.

Vaughn F. Ripley
Rockville, Md.
punisher@compuserve.com

Darn good read is less enjoyable

I have to agree with Michael D. Robinette [Letters to the editor, CW, Dec. 26, 1995/Jan. 1, 1996]. Profanity is rampant. I hear it on the radio, on television, and now, unfortunately, I read it in magazines such as yours.

I personally think that we should police ourselves, and I hope that you aren't starting a trend. I enjoy your magazine immensely. If you continue to use profanity, I guess that I will just enjoy it a little less.

James Thomas
WOSCA Shippers Cooperative
Seattle
james.thomas@wosca.e-mail.com

■ Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Bill Laberis, Editor, Computerworld, P.O. Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Verbatim

FROM A REPORT BY WAVERLY DEUTSCH, A SENIOR ANALYST AT FORRESTER RESEARCH, INC. IN CAMBRIDGE, MASS.:

Centralized management of distributed systems will fail. Far-flung business units bear the brunt of rapid technology change, and line managers can't wait for slow-moving, centralized management organizations. Self-interest dictates that [the business units] keep the applications up and running. [Multinational companies must build] their network and systems management responsibilities around "spheres of influence" — the business organizations or functions that are dependent on critical technologies.

Companies are spending a lot of time and effort to centralize management for their client/server environments.

Why? Because [the IS department] is focused on managing network technology such as routers and hubs, where it makes sense to centralize.

But computers and devices are multiplying like rabbits — creating chaos on a global scale. It's too much for one tool or group to manage effectively.

When SAP's R/3 [system] goes down, [for example,] it's the manufacturing group that suffers. They should have the tools and people they need to manage everything related to this application.

FROM A STATEMENT BY MARIAN SALZMAN, FUTURIST AT TBWA CHIAT/DAY IN NEW YORK:

According to [a survey of 300 influential Americans], 65% of American workers would take a salary reduction in exchange for more time off. Today's consumers will start experimenting with travel-by-keystroke, looking for that 10-minute, mind-cleansing "virtual holiday."

Or perhaps they will seek out a bona fide leave-the-computer-at-home vacation that they discover and book on-line. Can [vacation] packages that guarantee information isolation be far off?

Not such a dumb idea, after all

Eric Schmidt

REBUTTAL: Microsoft is wrong. Internet terminals will be a godsend for IS users and managers.

The column by Microsoft's Nathan Myhrvold a few months back ["A dumb Web terminal is just a dumb idea," CW, Nov. 13] derided the concept of a network computer or "Internet terminal" as a dumb idea. It is a column that will go down in history, but not for the reasons Myhrvold thinks.

The Internet explosion has happened. There is no turning back to the days when operating systems had a lock on customers. The new rules of the road are open and are spelled TCP/IP, Hypertext Transport Protocol, Hypertext Markup Language and now Sun's Java.

The Web gave the Internet the first universal method of access to information regardless of the operating system you used. For the first time in 15 years, the pervasive platform is an open network, not a proprietary operating system.

On top of that, the Java programming language provides universal access to programs regardless of their underlying operating system. For IS managers, this means they can centralize much of the administration of software across their enterprises and thereby lower their costs.

Which brings me to the Internet computer. If all the applications are available on your network, why lug around a 1G-byte hard disk and extra batteries?

Think of the telephone network as the model. You don't need to drag your answering machine with you on the road. You access your voice mail and delete and forward messages from anywhere.

An Internet terminal with a simple operating system can download small applets and files from robust servers, thus supplying the functionality of a PC at a much lower cost. Can you connect to your network with PCs? Sure. But most PCs used in business are underutilized and expensive.

The PC may be a relatively inexpensive device to purchase, but the sticker price is a fraction of the cost of ownership. A recent Gartner Group study estimates the average business PC costs $8,000 per year to maintain.

Worker productivity drops every time you deploy a new software application, as employees try to load the application, configure their systems, learn the new program and reboot every time the system crashes.

PCs have become personal activity tools, not personal productivity tools. We have all this functionality — spell checking, fancy fonts and graphics — that goes unused 80% of the time. And what percentage of corporate laptop PCs are redundant machines that are used solely to access the company network while workers are on the road?

Customers will purchase Internet terminals because the overall cost of ownership is favorable, not because of the cheap hardware. If you can centralize the administrative functions while continuing to provide the independence employees have become accustomed to, you solve a major headache for IS managers worldwide.

It's time to dispel another myth about the concept: The Internet terminal is not a return to VT-100 terminals, nor is it the X terminal revisited. The significant difference here is that programs run locally on the client while being administered and maintained centrally on a network of distributed servers.

No one is predicting the death of the PC. The success of the Internet will fuel much of the new PC demand, and Internet browsing is now a standard feature of PCs everywhere. But there's a better way to serve the needs of some corporate employees who need access to their networks and want simple computers with virtually no administrative costs.

Schmidt is the chief technical officer at Sun Microsystems, Inc. in Mountain View, Calif.

Beware of help-desk dependency

Nancy Johnson

It's time for a 12-step recovery program for PC users addicted to the help desk.

For every type of addiction, Americans have a 12-step recovery program. These counseling and support groups tend to have meetings that begin with members saying, "Hello, I'm Rufus. I'm an alcoholic (or gambler or overeater)."

Now it's time to start a 12-step program for computer users addicted to help desk professionals who solve all their problems.

Why bother to learn how to back up hard drives when there are people on the help desk who know how to use restoration utilities and can retrieve almost anything?

Why bother to install surge protectors when there are loaner PCs ready for you to use while your machine is in the shop getting the motherboard replaced?

Why bother to read a software manual, take a class or try the tutorial if a help desk staffer is just a phone call away?

These technology users may be the biggest group of "codependents" in the world, but they are loath to admit it. Psychologists would have a field day studying the dysfunctional relationships between PC users and their computer savants. Every company in the U.S. could form a 12-step program. "Hello, I'm Rufus. I'm addicted to the help desk."

But as all 12-step counselors know, codependents have enablers who make it possible for users to become so dependent. PC support personnel encourage the dependency by talking in techno-jargon that confuses users and by failing to help users avoid or prevent problems.

The aura of smoke and mirrors regarding computers started with mainframes, when programmers convinced users that chickens had to be sacrificed behind the computer room security doors to ensure a smooth year-end reporting cycle. PCs unleashed a new generation of unsure, inept users who are easily taken in by the suave help desk guru who could make files reappear and keyboards unlock with mystical incantations in a foreign language that uses back-slashes and dots.

What do the enablers get out of this unhealthy relationship? They get the opportunity to be superheroes — able to leap network connections with a single bound, download files at the speed of light and bend cables with bare hands. After all that, who wants to be a mere mortal? It is a powerful intoxicant to know that having one help desk person out sick for a week could bring the organization to its knees.

Getting users and help desk enablers to break this cycle of codependency is tough. Users are unlikely to break the pattern. It is easier for them to sit and wait to be rescued.

So the enablers have to be the ones to initiate the positive steps toward user self-sufficiency. PC support personnel are going to have to say no to wearing beepers and getting calls 24 hours a day. Classes will have to be held. Chargeback systems will have to be started so that business departments are charged for calls to the help desk.

And the enablers will have to find other ways to satisfy their need to be admired — maybe by learning how to talk the same business language as their users. Users and help desk staffers would then have healthier, happier and more productive work lives. But first we have to admit we have a problem.

Johnson, a recovering corporate IS professional, is now a happy MIS professor at Metropolitan State University in Minneapolis. Her Internet address is nancyj@msus1.msus.edu.

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ORACLE SEEKS MANUFACTURERS FOR INTERNET APPLIANCES, 43
NEW PRODUCTS, 43

Servers & PCs

LARGE SYSTEMS • WORKSTATIONS • PORTABLE COMPUTING

Servers enhanced

Top PC vendors offer new management features

By Bob Francis

Along with the standard new processors and latest hardware, Compaq Computer Corp. and IBM will offer more sophisticated management and reliability features on their PC servers.

The companies are integrating new features into their server management offerings. Compaq is adding a recovery server option to its low-end Novell, Inc. NetWare server line.

The continued emphasis on management and reliability is reassuring to the information systems managers who place company assets on these systems, said Gary Darby, network design manager at Pennzoil Co., a petroleum firm in Houston. "Basically, those features are the big selling points for us on these servers," he said. Pennzoil has about 200 Compaq servers on networks that run Windows NT.

Compaq and IBM are more tightly integrating their PC servers with storage systems. Compaq is adding a Smart-2 Array Controller for on-line capacity expansion of disk drives that use its storage systems. The Smart-2 lets a network manager add a disk drive without having to bring down the drive array to reconfigure the drives. The new controller can be monitored from Insight Manager, Compaq's server management tool.

IBM is adding remote management support for the company's Enterprise Expansion Enclosure and the SCSI MultiStorage Enclosure to its NetFinity systems management software.

Compaq in Houston also is pushing its high-end server options to the lower end of its product line. It is offering its recovery server option, which lets one server back up another server on the same network, on its ProSignia line.

New servers from Intergraph and Compaq

INTERGRAPH

InterServe Web Server 300
150-MHz Pentium Pro
32M bytes of RAM
Includes Internet server and authoring software
$11,900

InterServe Firewall Server 300
150-MHz Pentium Pro
32M bytes of RAM
Includes Windows NT and firewall application
$25,000

COMPAQ

ProLiant 4500 5/166
166-MHz Pentium
64M bytes of RAM
Microsoft BackOffice available for ProLiant 4500
$13,069

ProLiant 1500 5/166
166-MHz Pentium
32M bytes of RAM
Quad-speed CD-ROM
$7,589

Intergraph chases Internet market

A new server line from engineering workstation provider Intergraph Computer Systems, Inc. is making a play for corporate World Wide Web sites.

Intergraph in Huntsville, Ala., this week will introduce the InterServe MP server line, designed for workgroup and departmental sites. The InterServe line will include five systems designed as Internet servers.

The InterServe MP line includes software and hardware for Internet applications, including graphics accelerators for designing Web pages and Microsoft Corp.'s Internet Information Server software. Intergraph also includes free on-site setup with the servers, except for the low-end systems. — *Bob Francis*

IBM hikes Amdahl cost

By Craig Stedman

IBM is taking a more hardball approach to Amdahl Corp. mainframes that outperform its high-end machines. And that could cause headaches and higher prices for customers considering new purchases from Amdahl.

IBM is brandishing software pricing as a competitive weapon. The computer giant last month quietly put Amdahl's biggest boxes on a new pricing curve that may make MVS and IBM's other mainframe software more expensive when customers buy those systems or upgrade to them.

IBM has agreed that Amdahl's 10670 and 12670 mainframes that are already installed at customer sites won't be affected by the pricing change. But analysts said new purchases or upgrades could trigger price increases of up to 20% on IBM's software. IBM officials described those estimates as fair.

Mainframe pricing

Dale Perry, director of technology architectures at Bell Sygma, Inc. in Toronto, said IBM's move "certainly could impact a decision on a future [Amdahl] box if we had to get another one." Bell Sygma, the information systems and outsourcing arm of Bell Canada, Inc., has two 12670s and sees "a potential for larger requirements" down the road, Perry said.

He said Bell Sygma hasn't analyzed what the pricing shift would do to its software bill because it doesn't have any purchases in the pipeline. Perry, who discussed the change with IBM officials before it took effect, said he was relieved that at least installed systems were left out of the new equation.

"I understand where they're coming from and why

IBM, *page 43*

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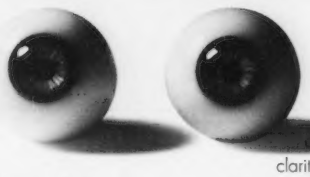

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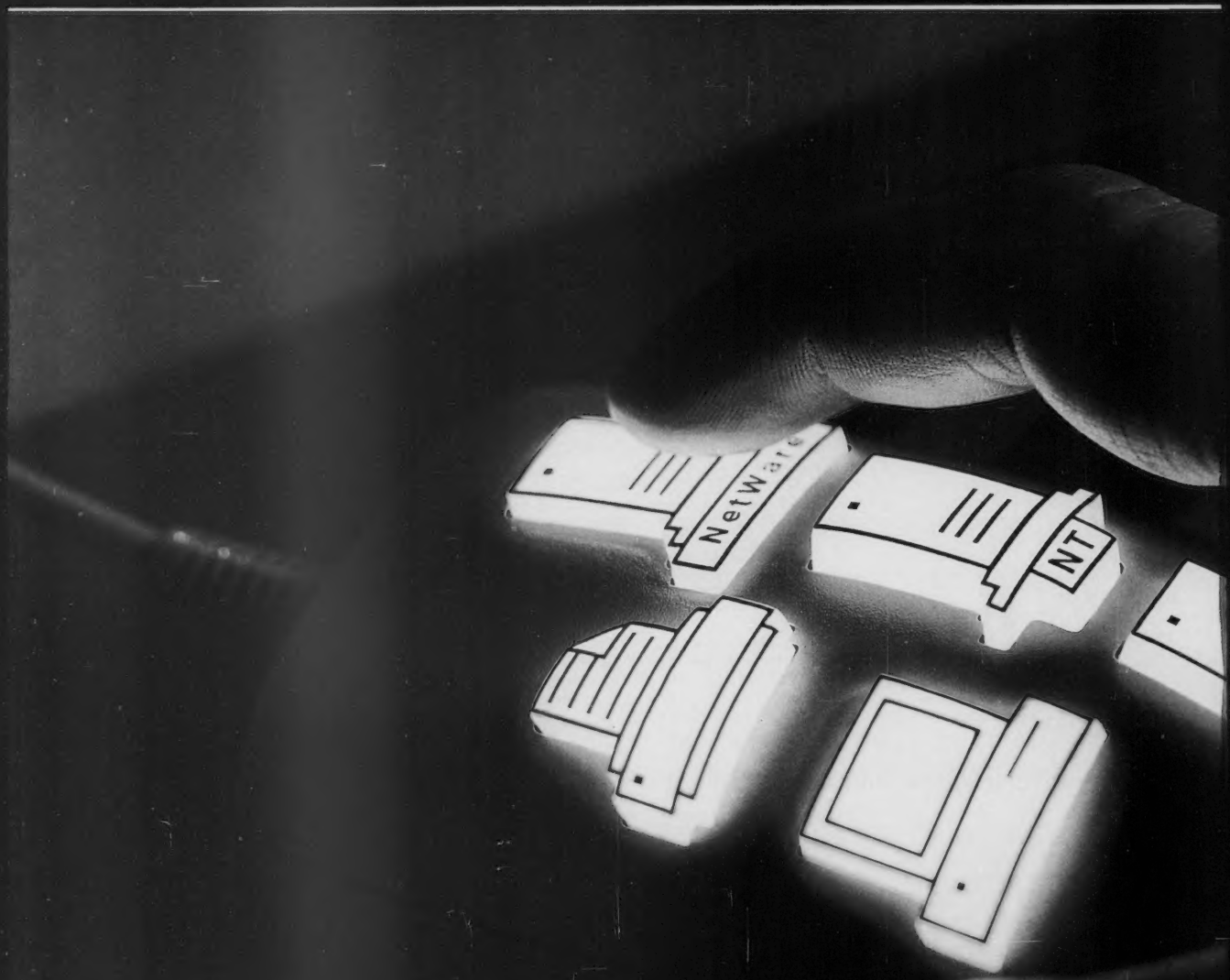

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Don't spend your day fielding questions about network printers. Instead, take a look at the HP LaserJet 5Si MX. With enhanced user software, inquiries such as "Is the printer out of toner? Out of paper?" or "Is it busy with another job?" all get answered immediately. Right from your users' desktops. Any print job – from the very simple to the very complex – can be tracked, managed, cancelled, or sent to a different printer quickly and easily. And the best thing is that you'll never hear about it. So take the intelligently simple approach to network printing. It may just free enough of your time for other important matters, starting with lunch.

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Oracle looks to Far East for partners

Lining up manufacturers for Internet appliances

By Terho Uimonen
TAIPEI

Larry Ellison's Internet "appliance" may be rolled out in California, but it probably will be built in the Far East.

Ellison, chairman and CEO of Oracle Corp., dreams of a world with $500 Internet appliances. He recently went to the Far East to drum up support for this dream among Asian manufacturers.

Ellison said that by April he expects commitments from no fewer than a dozen hardware manufacturers — most of them Asian — to build Internet appliances, which he calls network computers, or NCs.

These manufacturers probably will include four Taiwanese companies and two companies each from Japan, South Korea, North America and Europe. "Every company we have talked to is interested in the NC," Ellison said.

Ellison's presence certainly attracted interest. One presentation here drew more than 100 computer industry officials, Oracle Taiwan officials said.

Among those Ellison talked with were executives from Taiwan's largest PC maker, The Acer Group, and officials from Mitac International Corp., Taiwan Semiconductor Manufacturing Ltd., Tatung Corp. and Umax Data Systems, Inc.

Ellison also has held talks with officials at Japan's NEC Corp. and Toshiba Corp. and with South Korean conglomerates Samsung Electronics Ltd. and LG Electronics Co. Oracle officials said they are talking with executives from U.S. companies such as Compaq Computer Corp. and Intel Corp. about building the appliances.

Ellison says the first NCs will ship in September. The goal is to produce desktop systems that cost $495 and can be hooked up to a television or CRT monitor.

Uimonen is Taipei correspondent for the IDG News Service.

Briefs

Cambex introduces RAID array

Cambex Corp. in Waltham, Mass., became the latest RAID storage vendor to introduce an array that can support data from both mainframe and Unix/Windows NT servers. The Cascade XE is available immediately, and an optional add-on that lets mainframes do data backups for smaller systems will follow in the second quarter. EMC Corp. shipped a similar multiplatform array in November, and Encore Computer Corp. is also marketing one.

Unisys gets new CFO

Unisys Corp. has named Edward A. Blechschmidt chief financial officer. The 20-year company employee replaces George T. Robson, who has joined H&R Block as senior vice president and CFO.

Small and tough, from Epson

Epson America, Inc. in Torrance, Calif., has released a 340M-byte hard disk in a Type III PC Card form factor. Called the EHDD340, the card will accommodate media transfer rates of up to 6M byte/sec. and interface transfer rates of up to 12M byte/sec. The cards cost $395 in quantities of 1,000 and $599 retail.

Vendors back bus standards

Several PC vendors, along with **Microsoft Corp.**, have announced support for the IEEE 1394 high-performance serial-bus standard, which was designed to connect PCs with camcorders, VCRs and televisions.

2,000

IBM ups pricing

CONTINUED FROM PAGE 39

they felt they needed to do this," Perry said. "You may or may not like the whole concept of it, but I think they've been fair in the way they've implemented it."

Not fans

Others were less inclined to cut IBM some slack, especially after the company didn't put the Amdahl machines under the Indexed Monthly License Charge (IMLC) pricing model that was created early last year.

"It seems rather arbitrary and capricious for IBM to come out and change its mind a year later," said Michael Chuba, an analyst at market reseacher Gartner Group, Inc. in Stamford, Conn.

IMLC pricing, an alternative to IBM's traditional tiered software licensing, originally was applied only to Hitachi Data Systems Corp.'s Skyline mainframes.

With the addition of the Amdahl 10670 and 12670, the systems that run faster than IBM's biggest iron now face the higher software prices that IMLC makes possible (see chart).

The big chillers

The five most powerful water-cooled mainframes:

Mainframe	Processors	MSU rating*
Hitachi Skyline	8	136
Amdahl 12670	12	91
Amdahl 10670	10	82
IBM 9X2	10	78
IBM 982	8	67

* Millions of service units, a common way of measuring mainframe processor capacity

Source: Meta Group, Inc., Stamford, Conn.

On a single-system basis, IBM's move would mean only a slight pricing change on the Amdahl machines. But most 10670 and 12670 users take advantage of a multisystem discount that IBM offers with its tiered licensing.

That discount isn't available under IMLC pricing, which creates the potential for price increases, analysts said.

Winn Brown, manager of business analysis at IBM's System/390 Division, said IBM made the change after it accepted performance claims by Amdahl that put the 10670 and 12670 above the level at which IMLC pricing takes effect.

The change was meant to level the playing field for machines that don't have the same kind of raw power, he added.

New Products

Overland Data, Inc. has introduced L60E Data Vault.

L60E Data Vault is a member of Overland's TapeXpress family of Mainframe Class Tape subsystems. According to the San Diego company, the product combines 36-track backup capability with the ability to read and write 18-track tapes. It houses 60 cartridges that can be sequentially or randomly accessed for a native capacity of up to 50G bytes.

L60E Data Vault includes a resident cartridge slot for the permanent storage of a cleaning cartridge.

Pricing for L60E Data Vault starts at $28,900.

▶ *Overland Data*
(619) 571-5555

AeroComm, Inc. recently announced GoPrint/SRV, a wireless print server product.

According to the Lenexa, Kan., company, GoPrint/SRV lets users connect and print to as many as eight printers from a single network connection. Printers can be placed as far away as 500 feet and will work through walls and around corners from the print server.

The print server connects directly to the network wire through standard connections. GoPrint/SRV attaches directly to one of the parallel ports on the print server. An adapter transmits to a receiver attached to a printer.

Up to eight printers that are equipped with receivers can be addressed by a single print server.

Pricing for GoPrint/SRV starts at $299.

▶ *AeroComm*
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Call now or contact us at http://www.hp.com/info/1011 and we'll send you an interactive CD-ROM plus additional information about the HP LaserJet 5Si MX. The CD-ROM employs 3-D animation and sound to present an interactive demonstration of the software, features, and other options in this incredible machine. And while you're looking, bear in mind that the HP LaserJet 5Si MX and 5Si are both priced lower than their predecessors. Which leaves just one last question to be answered, "What are you waiting for?"

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- 3 standard input sources
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WEEK 3 OF 19

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1. Look for the COMPUTERWORLD TechnoTrivia icon to find the answers (planted throughout this issue) to the TechnoTrivia questions listed on this page.
2. Enter via COMPUTERWORLD's Web site on the Internet: **http://www.computerworld.com**
3. On the Web site Entry Form, identify the page number in this week's issue of COMPUTERWORLD where the correct answer to each TechnoTrivia question appears.
4. Or you may enter by fax using the Fax Entry Form below.

Put your RAM to the test!

THIS WEEK'S QUESTIONS:

1. How soon are Supreme Court decisions made available on the Internet after they are announced?
2. As of 1993, approximately how many Microsoft employees each owned $1 million in Microsoft stock?
3. What shortcut two-word command can you use in CompuServe to connect with the White House?"
4. Whose 1989 song includes this refrain: "Networking, I'm user-friendly/Networking, I install with ease/Data processed, truly BASIC/I will upload you, you can download me?"
5. What movie dealing with virtual reality is loosely based on a Stephen King short story?

Trivia questions and answers provided and/or verified by Christopher Morgan and The Computer Museum.

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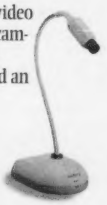

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Each Tuesday five winners and their associates (up to 20 people) will receive Dunkin' Donuts gift certificates (or alternative) for 3 dozen donuts, a Dunkin'Donuts coffee thermos, a pound of ground coffee plus an engraved TechnoTrivia plaque.

Please pass along this issue of COMPUTERWORLD to an associate after you have finished playing the game.

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NEW PRODUCTS, 48

Software

CLIENT/SERVER APPLICATIONS • DEVELOPMENT TOOLS • OPERATING SYSTEMS

NT comes into its own as development environment

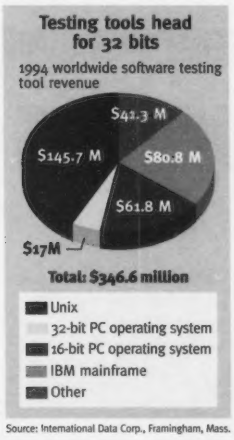
By Frank Hayes

Early last year, developers at Bank of America began working on an application for the bank's derivatives traders in Chicago. The development team decided to create two versions in parallel: one for the bank's SPARC-based Unix workstations from Sun Microsystems Inc. and one for Windows NT.

Now they're sorry they did.

"A year later, we're saying we should have just done pure NT. In fact, we're going to dump the SPARC version altogether," said Dan Meeks, vice president and manager of trading systems at Bank of America's financial engineering and risk management group. "NT is now a mature operating system," he said.

Meeks isn't alone in that opinion. Longtime Unix development tool vendors are porting their tools for supporting software development to NT.



Source: International Data Corp., Framingham, Mass.

In separate announcements, testing tool vendors Mercury Interactive Corp. and Pure Software, Inc. last week said they will soon ship NT versions of their Unix tools, and Atria Software, Inc. said it will offer a new version of the year-old NT version of its configuration-management software.

The moves are an important endorsement of NT as a software development platform. Between them, Mercury Interactive and Pure Software sell more than 10% of all software testing tools, a market Unix continues to rule, according to International Data Corp. in Framingham, Mass.

And those world-class tools have been missed. "I used to bemoan the fact that on NT I couldn't use a lot of the tools I grew up with on Unix," said Alan Noble, a consultant in Santa Cruz, Calif., and a former software manager in the petroleum industry.

Although Bank of America and Noble's former company continue to use Unix for most develop-

Windows NT, *page 48*

Supply and demand

Order management software sales rise, but market fragmented

By Julia King

Forget financial and human resources packages. Supply chain management software is fast becoming the biggest market wave to hit the client/server front.

U.S. companies spent $670 billion — about 10% of the gross national product — in 1994 to cover, load, unload, sort and transport goods, according to The Yankee Group in Boston.

The software that helps manage the supply chain includes packages for order management and demand forecasting and systems that are used for planning production, warehousing, distribution and transportation.

Yet for now, the market remains largely fragmented. There is no such thing as a single integrated supply chain management system.

More typical are best-of-breed implementations such as the one in progress at Campbell Soup Co. in Camden, N.Y. The $7 billion foods manufacturer is implementing software from five vendors as part of a supply chain management system scheduled for worldwide rollout next year.

Campbell's Ron Ferner: *Integration of information is the power of such systems*

But a handful of vendors are moving toward consolidation. They include American Software, Inc. in Atlanta and Manugistics Group, Inc. in Rockville, Md., whose suites of supply chain software include demand, distribution and manufacturing planning programs. Supply chain vendors also are teaming up with enterprise applications vendors to give users ready-made links between manufacturing systems such as SAP AG's R/3 and supply chain products. Manugistics and SAP have such an arrangement.

"Those partnerships are a big advantage for a corporation because they make points of attachment seamless," said Mike Doyle, business group logistics manager at BASF Corp.'s coatings group in Troy, Mich. The division uses Manugistics and SAP software.

Wholesale change

Driving the growth in the supply chain market is the reality of shrinking cycle times, which makes forecast accuracy more critical. "Manufacturers are taking on the role that wholesale distributors used to play, and they are scrambling to put together strategies and programs to satisfy that," said Jim Shepherd, a vice president at Advanced Manufacturing Research, Inc. in Boston.

As Campbell's fabricates its best-of-breed supply chain management systems, its goal is to get to "one-number" forecasting.

"In the past, the functions have been fractured, and the links were pieces of paper floating between them or [telephone] calls, " said Ron Ferner, vice president of low-cost business systems at Campbell's. "With the databases we have today, it is all going to be integrated, and different people will call and get the same information. And that's the power of this stuff."

Start-up brings data mining out of the cave

By Dan Richman

A Silicon Valley start-up plans to announce in April a piece of software it says will bring the benefits of a somewhat obscure and exotic technology — data mining — into the information systems mainstream.

DataMind, Inc. in Redwood City, Calif., plans to bring data mining "out of the realm of academia, artificial intelligence, highly skilled power users" and into the corporate middle class, said A. J. Brown, vice president of marketing at the company.

Data mining products are query tools that let users discover previously unknown relationships within data. By contrast, most query tools require that users know what they are seeking.

Query tools

For example, given the proper data, any query tool could report what percentage of a store's shoppers last month bought pretzels and beer at the same time.

But a data mining tool could analyze the buying patterns of beer buyers and note an unexpected trend: that more of them buy diapers than pretzels. This might lead a store to move baby care goods closer to the liquor department in the hopes of increasing sales.

About a dozen companies offer data mining tools. Nearly all have sales of less than $10 million a year, and the total market is only about $70 million annually, according to Meta Group, Inc. in Westport, Conn.

But analysts said they expect the market for these tools to explode in 1997 and reach $300 million. "People are spending a lot of money assembling data warehouses and are going to want to squeeze all the meaning they can out of that vast, expensive data," said Alexis de-Planque, a research analyst at Meta Group.

Many products are offshoots of university research into artificial intelligence and require a fair degree of training to be used effectively.

"What DataMind plans is very sophisticated but will be simple to use. That's a good combination [that] one business will probably respond well to," said Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Newton, Mass.

DataMind executives won't discuss the specifics of the technology that underlies their forthcoming product. But it appears to be a hybrid of several leading data mining technologies, including neural networks, in conjunction with software agents. They call it "neuro-agent" technology.

Andersen Consulting in Northbrook, Ill., used a beta version of DataMind's product to create a system that detects fraudulent car warranty claims by auto dealers. The product took less time to learn and use and was more accurate than that of a leading competitor, said Ramin Mikaili, a consultant at the company.

Groupware gets by with help from friends

By Tim Ouellette

Like the Lone Ranger, Batman and Sherlock Holmes, groupware needs partners to get the job done.

Groupware products such as Lotus Development Corp.'s Notes and pending offerings from Microsoft Corp. and Novell, Inc. are development environments that need good applications to make collaboration succeed.

Similar alliances via third-party developers and integrators play a crucial role in successful groupware installations; they offer users integration services, shrink-wrapped software, custom product development, consulting and education.

To further encourage such collaboration, Notes creator Ray Ozzie told attendees at Lotusphere '96, which was held recently in Orlando, Fla., that Notes will continue to be more object-oriented on the client side. This will let third-party developers add different functionality for users, he said.

The object focus, which is highlighted by Lotus' components strategy for Notes [CW, Jan 29], will let developers add feature subsets from other applications so users can work from within the Notes environment.

Lotus has approximately 12,000 partners developing, consulting or integrating Notes worldwide.

Vendor alliances

To help users wade through the products, Stream International, Inc. in Westwood, Mass., recently announced NotesStore, a program that provides a central repository on-line and at the corporate site for Notes-related product information.

Analysts said users often don't know there are shrink-wrapped products available to do something they think needs custom development.

"Some people have the perception that all installations of products such as Notes are custom, complex applications," said Karl Wong, an analyst at Dataquest, Inc., a research firm in San Jose, Calif. "This is not the case. Many turnkey solutions are available that may solve a customer's needs right out of the box."

Novell and Microsoft, which have been urging application development for their groupware products, are paying close attention.

"We have signed a number of developers as early adopters, so they will have products ready when [Novell's] GroupWise XTD hits the streets," said Eldon Greenwood, product manager at Novell's groupware division in Orem, Utah.

But while there are legions of Novell NetWare resellers and integrators out there, their expertise won't necessarily translate to GroupWise XTD applications, said Nina Burns, president of Creative Strategies, Inc. in Palo Alto, Calif.

"The difference is that NetWare vendors are building utilities, but they are not application developers," she said.

Microsoft in Redmond, Wash., has targeted companies to work with the firm to develop and sell its Exchange applications in areas such as electronic forms, workflow and voice-mail integration, said Stan Sorensen, a product manager for Exchange.

Exchange will ship sometime this quarter, and Sorensen said he expects up to 25 related products to be available within 30 days of the ship date.

Will Lotus' developers ride with the company into the sunset or look to new horizons with Exchange and GroupWise XTD?

In terms of integration services, it seems these firms feel they can translate their Notes experience to these other groupware packages. But translating software to a different groupware platform may be hindered by the different capabilities of the groupware products and may not be useful to users.

One area in which users could see a translation is data integration products. For example, officials at Casahl Technology, Inc. in Danville, Calif., plan to expand the firm's Replic-Action software to support more data sources and emerging groupware platforms.

Lawnmower Man

Highlights of Lotusphere '96

Lotus helped get those Notes 4.0 migrations off to a good start at Lotusphere '96 last month in Orlando, Fla. Attendees could first train on computer-based training kiosks from CBT Systems, Inc. and then take the Notes 4.0 technical certification exam. At least 500 people earned their certifications, officials said.

At various conference sessions on migrating to Notes 4.0, attendees were urged to find a highly placed Notes champion in their firms to make sure the groupware installation gets support from above. IBM and Lotus plan to make Notes creator Ray Ozzie more visible in promoting the product now that former Notes champion Jim Manzi is gone.

And while most of the conference sessions on Notes 4.0 migration and security were packed, some sessions on Lotus' desktop productivity suite, SmartSuite, curiously were canceled.

IBM kept a low profile during the show, leaving things to the Lotus people. But Lotus got right to the point in explaining the benefits IBM has brought to the Cambridge, Mass., firm. One highlight was that while Jeffrey Beir, senior vice president of Lotus' applications group, listed the positive aspects of the merger, dollar bills rained down on the stage behind him. — *Tim Ouellette*

Personal Oracle Lite may be too little too late

By Dan Richman

Oracle Corp. is rounding out its relational database management system offerings with a version of its Oracle7 RDBMS for laptops. The lightweight database can be embedded into other products such as accounting applications and statistical software.

Although it is compact and inexpensive, Personal Oracle Lite lacks several key features. Rival Sybase, Inc.'s SQL Anywhere already has several of those features (see chart).

"Oracle is rushing to get something onto the market that competes with Sybase when it should have waited six months to put out something that's more fully featured," said Stan Dolberg, an analyst at Forrester Research, Inc. in Cambridge, Mass.

Personal Oracle Lite fits within 1M byte of memory and 10M bytes of disk space. That lets it reside on laptops, most of which have a maximum of 4M bytes of memory.

The other compact version of Oracle7 on the market, Personal Oracle7, consumes at least 8M bytes of memory.

Personal Oracle7 is intended for use by software engineers who want to develop applications on the go. Personal Oracle Lite is for users who want to deploy those and other applications.

Officials at Oracle in Redwood Shores, Calif., acknowledge that Personal Oracle Lite has several drawbacks in the available-features department. For starters, it can't handle PL/SQL, Oracle's extensions to SQL. That means applications can use only generic SQL, so they may have to be rewritten for use with Personal Oracle Lite. It also means applications can't use stored procedures, which can greatly increase an application's speed.

Personal Oracle Lite also lacks rollback or recovery capabilities, so it can't be used reliably in a distributed setup for on-line transaction processing. In Personal Oracle Lite's first release, users can't replicate to or from it.

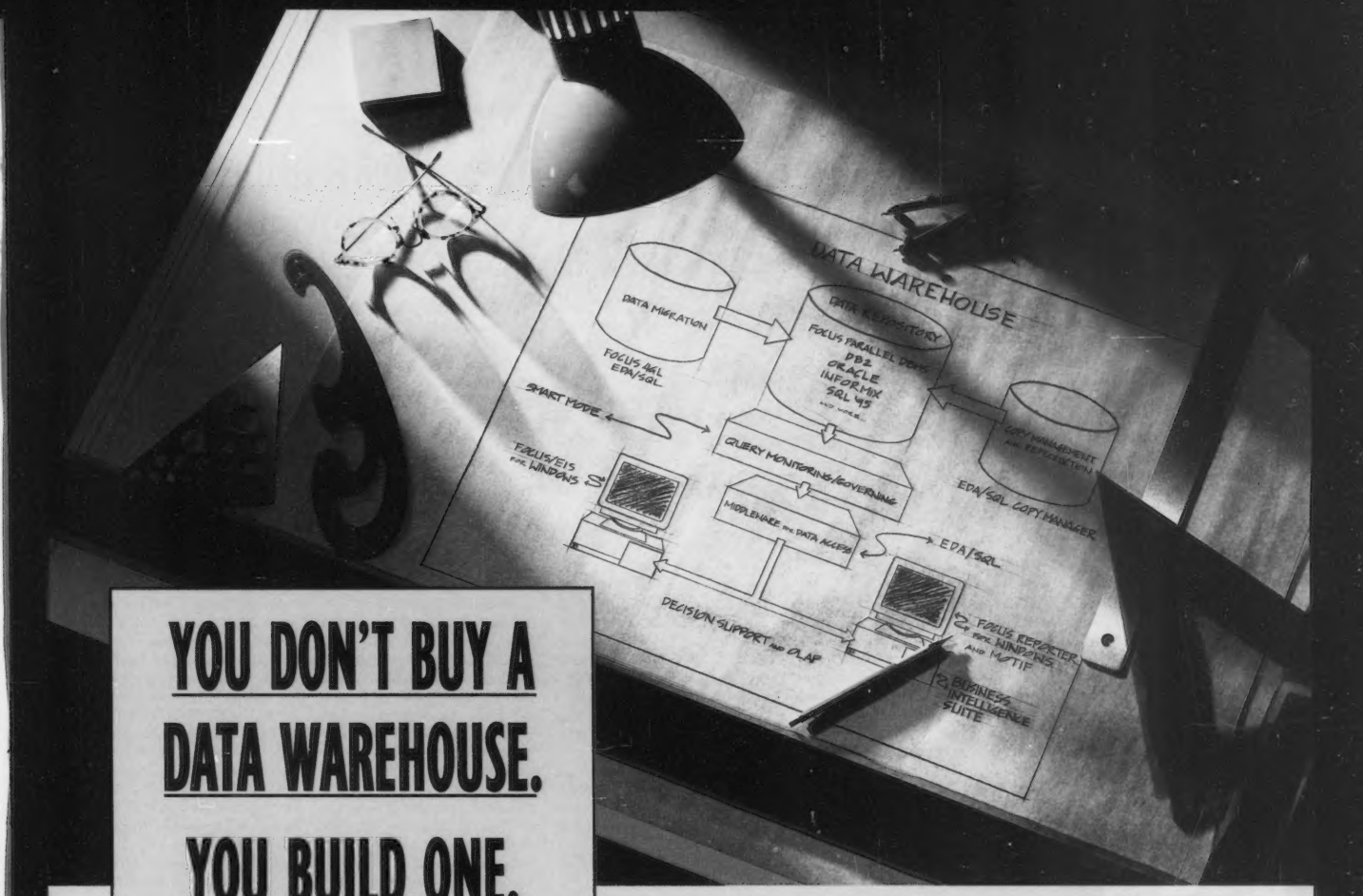
Even in its second release, which is due out by the end of the year, it will use either SQL Net or Oracle's Mobile Agents to accomplish replication rather than the more capable messaging-based technique, Dolberg said.

"Personal Oracle7 does take up a ridiculous amount of memory, so it's good that Personal Oracle Lite is smaller," said a systems analyst at a major electronics manufacturer who asked to remain anonymous. "But I just don't see what use Personal Oracle Lite would be to us if it can't handle PL/SQL. It sounds like Oracle is curing one problem and creating another."

Great taste . . . less filling

The "Lite" RDBMS market

Vendor/ Product	Minimum memory required	Minimum disk space required	Platforms supported	Limitations	Price
Informix Software Informix-SE	1M byte	10M bytes	Windows 3.1, Windows 95 (by July 1), Windows NT, OS/2, DOS	Lacks support for binary large objects	$199
Oracle Personal Oracle Lite	1M byte	10M bytes	Mac OS (by April 1), Windows 3.1, Windows 95, Windows NT	Lacks PL/SQL support, rollback/ recovery and replication	$195
Sybase SQL Anywhere	1M byte	10M bytes	Windows 3.1, Windows 95, Windows NT, OS/2, DOS, NetW are	Lacks symmetrical multi-processing support	$295



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Development made easy

Forte Express automatically generates multitier apps

By Frank Hayes

Hoping to make life easier for users of its high-end development system, Forte Software, Inc. last week announced a visual front end to the Forte Application Environment.

The tool set, known as Forte Express, automatically generates multitier applications instead of requiring developers to code them by hand with Forte's fourth-generation language.

"I like being able to use graphical models to describe the application and then let the tool generate the code. If that's not the wave of the future, I don't know what is," said Mark Joyce, an engineering supervisor for information services at Corning, Inc. in Wilmington, N.C. He has beta-tested Express.

Pricey setup

Express will ship in March and costs $20,000 per site license. It requires the full Forte environment to deploy the generated applications, which costs about $4,000 to $6,000 per developer and about $225 per user.

That isn't cheap, but Forte's argument for the high price tag emphasizes that it is a full client/server deployment environment and a development system. It transparently handles networking requirements and supports application and systems management.

This lets developers build applications as if they would run on a single mainframe-like system instead of on a networked collection of desktop computers and servers that run Unix and Windows NT.

But until now, Forte in Oakland, Calif., has lacked visual tools for quickly modeling and generating applications.

Developers can use Express to generate visual business models from Oracle Corp.'s Rdb, Microsoft Corp.'s SQL Server, IBM's DB2 or Informix Corp. and Sybase, Inc. databases.

The models then can be used to generate default screens for an application, including window layouts, menus and buttons.

Straight as an arrow

Developers also can add business rules and make their own changes to the code, which are preserved when the code is regenerated.

"They've really done a lot to make modeling an application very straightforward," said Mike Shaffer, director of technology and development at Amisys Managed Care Systems in Rockville, Md. "There aren't too many tools that take you [from] soup to nuts — from reverse engineering a database up through producing a business model and then finally generating an application," Shaffer said.

Express isn't the way to go when applications have specialized user interface requirements or require connection to an external application, Joyce said.

"But you can quickly prototype and generate small focused applications, and that satisfies a big part of our application space," he said.

Veil of tiers

Two-tier application: a complete application on one machine (the first tier) that communicates with a remote database (the second tier).

Three-tier or multitier application: a relatively small user application (first tier) that communicates with application logic such as business rules on a different machine (second tier). This communicates with a remote database (third tier). Application logic may be partitioned among several machines on a network.

Geoworks hopes tools pique interest in PDAs

By Mindy Blodgett

Connectivity, communications and entertainment. These are just a few of the applications Geoworks hopes to persuade developers to tackle through its development program for Hewlett-Packard Co.'s OmniGo 100 personal digital assistant (PDA).

OmniGo runs on Geoworks' Geos operating system. Since OmniGo's announcement in mid-October, Geoworks has been trying to drum up interest in PDA application development by launching tools and developer's kits.

Personal digital assistants

These include the Geos Software Development Kit, which offers traditional application building tools for its platform and has an open architecture, and Geoworks Bindery 2.0, which gives developers tools to actually build a "book" that comprises graphics and hyperlinks.

According to Dave Scarborough, vice president of developer relations at Geoworks, response to the tools has been high. He said more than 60 developers attended a Geoworks tutorial session at a recent PDA Developer's Conference in San Jose, Calif.

Hundreds of developers are building Geoworks applications in several categories, including connectivity, communications, content, entertainment and productivity, he said.

For instance, one U.K. company is working with the *Financial Times* in London to develop a content application that bundles restaurant and hotel information in to OmniGo, Scarborough said.

The PDA market has been rife with missteps and wrong turns, leading some critics to declare that users never will clamor for the devices.

But the OmniGo 100 has made some advances in the stalled market, according to industry observers. HP is tight-lipped about the actual breakdown, but the company reports that approximately 600,000 units of the HP 100LX, 200LX and OmniGo have been sold, which makes the Palo Alto, Calif., company the market leader.

A higher profile for the OmniGo, which costs less than $350, means more market share for Geoworks.

"Geoworks has muscled its way to the forefront in the last six months in the PDA market," said Michael McGuire, an analyst at Dataquest, Inc. in San Jose, Calif.

New Products

ForeFront, Inc. has announced the ForeFront 2.95 Help Authoring System for Windows 95.

According to the Boulder, Colo., company, ForeFront 2.95 Help Authoring System lets users incorporate WinHelp 95 features into help files and create topics directly from a contents page editor.

Users also can use drag-and-drop editing tools to rearrange topic books and pages. The product lets users create custom looks for help windows by using the windows classes menu to specify window position, size, priority and background colors.

ForeFront 2.95 Help Authoring System incorporates Windows 95 features, including expandable and navigable contents pages, multilevel keyword searches across multiple indexes and full-text search on any user-specified text.

It supports 256 color and 24-bit color-embedded graphics and backgrounds.

ForeFront 2.95 Help Authoring System for Windows 95 costs $395.

▶ *ForeFront*
(303) 499-9181

Oberon Software, Inc. has announced Prospero, a visual application integration product.

According to the Cambridge, Mass., company, Prospero supports Lotus Development Corp.'s Notes 4.0 and lets Notes users create graphical programs to integrate information between desktop PC applications, corporate databases and Notes forms.

Programs and applets are created in Prospero by connecting graphical building blocks that Prospero forms from the applications that need to share data.

Programs created by Prospero can be run in the product or as stand-alone programs that can be run independently or embedded in other applications.

Prospero supports fundamental Notes data types and translation between Notes internal rich text and Microsoft Corp.'s Rich Text Format.

Prospero costs $695.

▶ *Oberon Software*
(617) 494-0990

IMM Corp. has introduced Cyrano Suite 2, a collection of application performance analyzers.

According to the Burlington, Mass., company, Cyrano Suite 2 is based on Sybase, Inc.'s OpenServer technology and was designed to seek out poorly running transactions and analyze development teams' performances.

It includes Cyrano Production, a background process that runs beside the production server, and Cyrano Watcher, a client-side background process that lets developers gather connection time, response time and transaction statistics.

It also comes with Cyrano Development, an OpenServer gateway that raises alarms for single transactions that exceed predefined performance thresholds.

Pricing for Cyrano Suite 2 starts at $2,500.

▶ *IMM*
(617) 270-0614

Windows NT

CONTINUED FROM PAGE 45

ment, Windows NT is gaining ground because of its lower price, ability to run Windows-based software and steady improvement. With Version 3.51, Windows NT finally seems to be a mature-enough operating system to be used for clients.

That maturity — and the conclusion that NT may well be the future in many corporate shops — has pushed longtime Unix vendors such as Pure Software and Mercury Interactive to support NT.

Pure Software's Purify, which detects runtime errors and memory leaks, will be available for NT by midyear and costs $1,200, according to the Sunnyvale, Calif., company. A Windows 95 version will ship by the end of the year.

Purify for NT doesn't seem to catch as many errors as the Unix version, but the NT release is easier to use, Noble said. He has beta-tested the product.

Mercury Interactive's WinRunner tool set for testing graphical user interfaces will support NT starting with Version 4.0, which will ship in March for $3,995.

The Sunnyvale, Calif.-based company's TestDirector system for running and managing tests also will support NT with Version 2.0, which costs $8,995 for five users.

Atria, which last year shipped the first NT version of its ClearCase configuration-management system, will release ClearCase 2.1 for NT by the end of March. Prices start at $4,000 per license. The new version sports better integration with the operating system, Windows-based tools and ClearCase on Unix.

That is important for many corporate shops such as Bank of America, which will continue to use Unix on its servers for now.

"But eventually you want [NT] on the server side, too — if nothing else, to simplify administration," Meeks said. "It may be another year or so, but it's just a matter of time."

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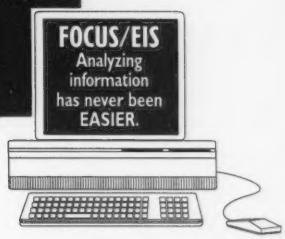

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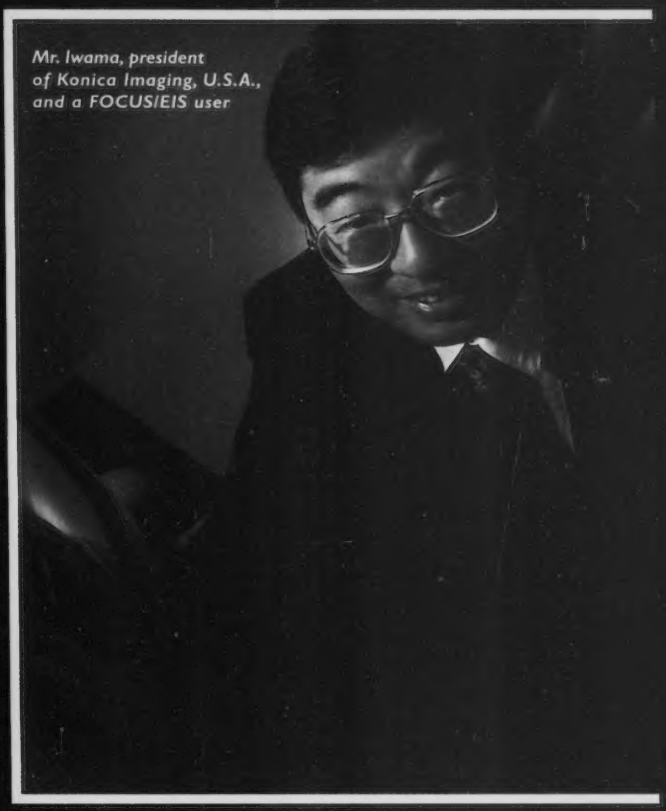

Mr. Iwama, president of Konica Imaging, U.S.A., and a FOCUS/EIS user

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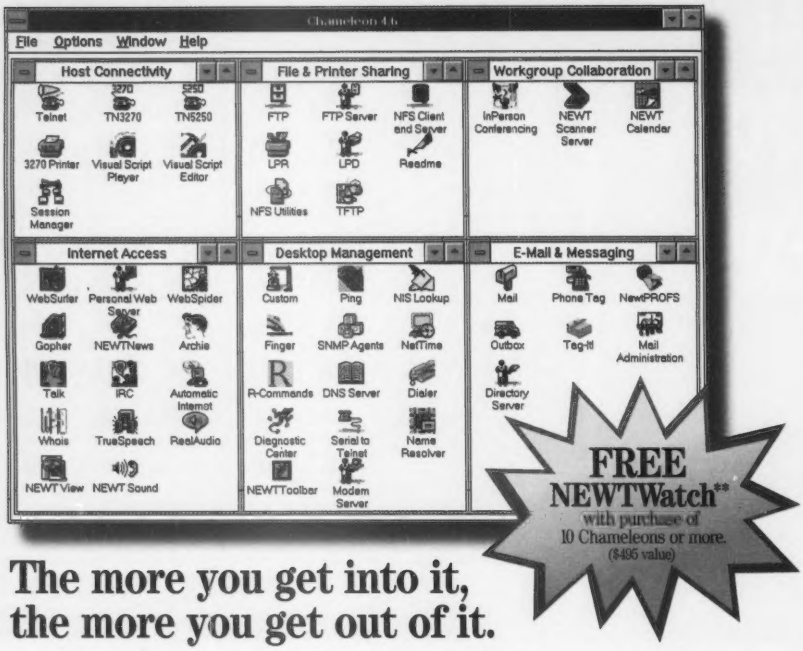

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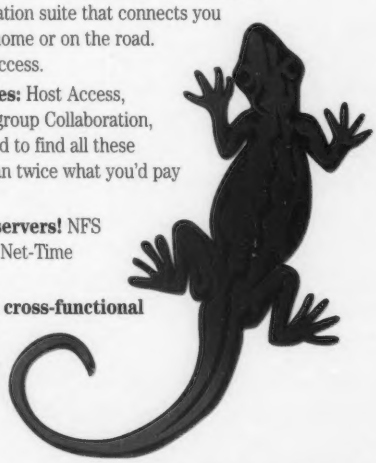

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APPLE TO SHIFT MESSAGING STRATEGY, 52

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Firewall chaos

Association moves to reduce confusion in turbulent market

By Gary H. Anthes
ARLINGTON, VA.

The National Computer Security Association (NCSA) has taken on a large task: bringing order to the chaos in the network firewall market.

The NCSA in Carlisle, Pa., announced at a conference here that it has established a program to test products from the 21 members of the Firewall Product Developers' Consortium. The NCSA will establish a baseline of capabilities that effective firewalls should offer. The group will certify for users which products meet those criteria.

NCSA President Peter Tippett *says the firewall consortium will set a performance baseline*

Firewalls employ user-specified rules to filter traffic between a corporate network and a public network such as the Internet. Firewalls have quickly become popular as more companies connect to the Internet and worry about hacker intrusions.

Just two years ago, firewalls were limited mostly to custom programs written by a few advanced users. Now, more than 40 vendors offer commercial products, and most of the vendors bring out new releases every six months, said Tammy Mannarino, a systems security engineer at the National Security Agency.

"Customers are pretty confused, and there is a lot of vendor and media hype," she said.

NCSA officials said the agency will work with vendors to create standard terminology.

The association also will publish white papers to help users understand the issues they should consider when buying a firewall, said Peter Tippett, president of the NCSA.

Tippett said the performance baseline for certification will be a list of security threats that rank high on three scales: likelihood of use by hackers, ease of use by hackers and amount of harm done by a successful attack. The idea is to develop a set of criteria that accounts for at least 90% of the risk and update the list as threats change, he said.

William H. Murray, information security consultant at Deloitte & Touche, said the certification program will be useful but may be limited because it will be based on a list of major known systems attacks.

"What you won't know is how well a firewall will respond to attacks that have yet to be invented," Murray said. He said firewalls vary considerably in their ability to defend against types of attacks that haven't been explicitly programmed into them.

"It's nice they are talking about speaking a common language because nobody but nobody knows what a firewall is anymore," said Jennifer Lawton, CEO of Net Daemons Associates, Inc., a networking consultancy and outsourcer in Woburn, Mass.

But Lawton said she is "skeptical they will actually agree on something" because there are many approaches to firewall technology and so many claims and counterclaims among vendors.

Firewalls helpful in Internet policies

Security expert William Murray said firewalls may be used to implement any of the following Internet policies:

- Paranoid — don't connect to the Internet at all.
- Prudent — any activity not explicitly allowed by the firewall is blocked.
- Permissive — any activity not explicitly blocked is allowed.
- Promiscuous — anything goes.

Murray recommended that users establish a policy "on the paranoid side of prudent." He also recommended using end-to-end encryption for commercial applications on the Internet and one-time passwords for all network applications.

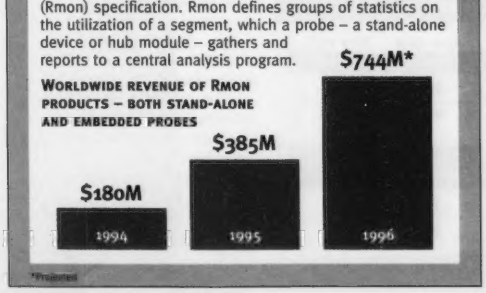
Steven Branigan, a senior systems engineer at Bellcore in Red Bank, N.J., had the following advice for security-conscious network users:

- Approach Internet use with great caution.
- Use a firewall to protect internal networks.
- Review all access points to the corporate network, not just the primary Internet access point.
- Limit access by insiders to corporate data.
- Encrypt data where necessary.

— Gary H. Anthes

Snapshot **Rmon market building**

For the first time, market analysts have quantified user demand for network management tools based on the Remote Monitoring (Rmon) specification. Rmon defines groups of statistics on the utilization of a segment, which a probe – a stand-alone device or hub module – gathers and reports to a central analysis program.



Source: International Data Corp., Framingham, Mass.

Fast Ethernet gains momentum

By Bob Wallace

Fast Ethernet technology is spreading fast.

Fast Ethernet gives users who have Ethernet LANs 10 times the bandwidth, and it often costs 1½ times less than what they paid for their equipment. It also preserves existing building cabling.

As a backbone technology, 100M bit/sec. Ethernet offers users a cheaper alternative to Fiber Distributed Data Interface and a more mature alternative to Asynchronous Transfer Mode.

Chris Martin, senior data processing manager at Plymouth Rock Assurance in Boston, said his company will move its Novell, Inc. file servers from regular Ethernet hubs to Fast Ethernet hubs. This will help the firm provide faster access to the file servers and protect Plymouth Rock's investment in twisted-pair wire.

"The two prime applications for Fast Ethernet are to provide fat pipes to open up access to servers and to unclog connections between hubs and between switches," said Skip MacAskill, an analyst at Gartner Group, Inc. in Stamford, Conn.

3Com Corp. in Santa Clara, Calif., and Cabletron Systems, Inc. in Rochester, N.H., have announced Fast Ethernet upgrades.

3Com has introduced Fast Ethernet modules for its LANplex family of switches [CW, Jan. 22]. The company's planned products include the following:

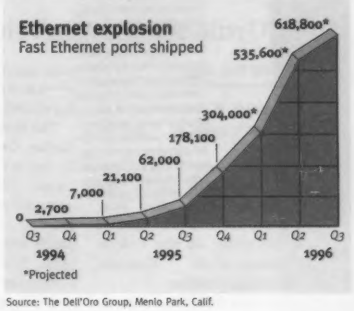
- Two Fast Ethernet modules for its LANplex 2500 switch. A module that supports a single unshielded twisted-pair (UTP) wire port will ship in March and will cost $1,495. Another module that supports a fiber port is due in the second quarter and will cost $1,795.
- Two Fast Ethernet modules for its LANplex 6000 data center hub. One module, priced at $19,000 and due in March, will support a single UTP port and 16 10M bit/sec. ports. It connects Ethernet clients to a Fast Ethernet-attached server. The other module supports the same features over fiber and will ship in April. It will cost $20,000.

Cabletron is cutting loose with an array of Fast Ethernet products, due in 90 days.

These include FastNet 100, a $16,800 box with 16 Fast Ethernet ports; and the FastNet HubStack line, two stackable Fast Ethernet switches that start at $6,995.

"This is an area that Cabletron needed to play in," said Mike Cambisios, manager of communications and public safety operations for the city of West Palm Beach in Florida. Cambisios runs a Cabletron shop but bought 3Com switches to gain Fast Ethernet. He expects to move to Cabletron products now that this hole in its product line is filled.

Fast Ethernet means "we can transmit 10 times the data as we did before [and cut] network congestion," Cambisios said.



Source: The Dell'Oro Group, Menlo Park, Calif.

Briefs

Wireless data

California Microwave, Inc. will install its Microwave Data Systems wireless data transceivers into **Amoco Corp.**'s large gas field automation project. California Microwave in Redwood City, Calif., will install its full-spectrum radio system in more than 1,500 remote sites for the oil firm.

LAN cards debut

Compaq Computer Corp. in Houston introduced its first Ethernet LAN PC card. The card offers driver support for mobile users who seek access to the corporate network via notebooks. The card costs $169.

Shiva booming

Shiva Corp. in Burlington, Mass., maker of remote access products, reported record quarter and fiscal year results. Revenue for its quarter ended Dec. 30 was $35.6 million, 67% greater than revenue in the same quarter of the previous year. For its fiscal year ended Dec. 30, revenue totaled $117.7 million, compared with $81 million for the prior fiscal year.

Apple revises messaging plans

Company says it will support open standards over the Internet

By Lisa Picarille

In a surprising about-face, Apple Computer, Inc. won't include its PowerTalk electronic-mail system or its PowerShare directory services in Copland, the microkernel-based version of the Mac OS due out later this year.

Apple's revised messaging plans call for Copland to support and deliver E-mail and collaborative services via industry-standard Internet protocols and OpenDoc. The plan is intended to foster collaboration and communication.

The industry-standard protocols include Simple Mail Transfer Protocol, Post Office Protocol and Multipurpose Internet Mail Extensions.

OpenDoc isn't an industry-standard protocol for communication via the Internet, but it will be built in to Copland, and there is a Windows version of it. Jointly developed by IBM, Novell, Inc. and Apple, OpenDoc provides developers with a set of application programming interfaces that offer a consistent method for exchanging data among applications and across platforms.

Staying the same

The PowerTalk E-mail system, which offers a single in-box as a repository for all types of mail, will remain part of System 7.5, the current version of the Mac OS. It will be added to future updates of that version of the operating system.

In a recent internal memo obtained by *Computerworld*, Apple officials said the company will continue to sell and support PowerShare 1.1 but won't enhance the product further.

Apple's messaging strategy

- PowerTalk will remain part of System 7.5x
- The company will continue to sell and support PowerShare 1.1
- Copland won't support PowerTalk/PowerShare
- Copland will support standard Internet protocols, including Simple Mail Transfer Protocol, Post Office Protocol and Multipurpose Internet Mail Extension
- Copland will also support OpenDoc

In the memo, Apple officials claimed the explosive growth of the Internet prompted the company to begin shifting its messaging and E-mail strategy away from proprietary technology to industry-standard Internet protocols.

But one analyst said Apple's decision to drop PowerTalk in Copland may have stemmed from a lukewarm reception to the technology, which isn't widely used.

"I was surprised and sorry to hear Apple is giving up a lot of its PowerTalk and PowerShare systems software. From the messaging standpoint, I thought this was quite powerful technology," said David Ferris, president of Ferris Research, a market research firm in San Francisco. However, Ferris added that the PowerTalk and PowerShare technologies didn't seem to catch on because of glitches that occurred when working with many commonly used third-party extensions.

Being cautious

One user said the concept of PowerTalk was very appealing but reported problems with the technology. He said Apple's inability to clearly differentiate it from existing E-mail systems has made him hesitant to move to it.

"We are not using PowerTalk because we looked at it and got confused as to its purposes" when compared with our existing mail system, said Clay Hutcherson. He is a systems developer at Centric Systems Corp., a systems integrator in London, Ont. The company, which has more than 900 Macintoshes, uses QuickMail as its communications engine.

Apple officials acknowledged that users weren't rapidly adopting PowerTalk because of some performance problems but said the company plans updates for users who want to continue using the product with the current version of the Mac OS.

Frame-relay service prices going higher

FCC rule change won't slow growth

By Neal Weinberg

The price of frame-relay networking is going up — at least on paper.

Market leader AT&T Corp. filed frame-relay tariffs two weeks ago, while other long-distance carriers are expected to file today, on the Federal Communications Commission's filing deadline.

The new AT&T rates for the popular data transport are 5% to 10% higher than the informal rates the company published last April, according to Beth Gage, an analyst at TeleChoice, Inc. in Verona, N.J.

Gage predicted that MCI Communications Corp., Sprint Corp. and LDDS Worldcom, Inc. will propose similar rate increases. The FCC ruled last year that frame relay is a basic service, which requires the filing of formal rates.

Tim Burke, an analyst at The Yankee Group in Boston, said he doesn't think the price increase will slow the deployment of frame relay, the fastest-growing of the new breed of packet-based technologies. "Frame relay is like a runaway train at this point; it's going to take a lot to derail it," he said.

Locking it in

A formal tariff theoretically means a carrier is locked in at that rate, but Burke said there is still plenty of room to negotiate. "The bottom line is that you can still cut deals one way or the other," he said.

In fact, Hank Levine, a partner at the law firm of Levine, Blaszak, Block and Boothby in Washington, said he urges users to consider the tariff a starting point for negotiations.

Large users have been able to get as much as 40% off the posted price for frame relay, Levine said.

Users can extract volume discounts off the tariff rate or gain discounts on enhanced services such as network management, Levine said.

For example, Chuck Ciulla, manager of telecommunications planning at ITT Sheraton, the Boston-based hotel chain, jawboned all the major carriers "to the point of nausea" before buying frame-relay service from AT&T last July.

Over the course of the negotiations, "the price went way down," Ciulla said. "It's a buyer's market right now."

AT&T said it wasn't worried that filing first would give competitors the opportunity to come in with lower prices. The company said customers choose a carrier based on service, support and reliability before price.

But FCC rules forced AT&T's hand. Because AT&T is considered a "dominant carrier" in international service, it has to file those rates 14 days in advance. So for its domestic and international rates to take effect the same day, AT&T had to file early. The other carriers can file rates the day before they are slated to take effect.

AT&T's frame-relay service:

	Old rate	New rate
56K bit/sec. port:		
Installation	$500	$800
Monthly charge	$273	$290
Two-way Permanent Virtual Circuit at 32K bit/sec. Committed Information Rate:		
Installation	$25	$25
Monthly charge	$59	$65

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80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)
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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No

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C. 5,000 – 9,999	❒	❒
D. 1,000 – 4,999	❒	❒
E. 500 – 999	❒	❒
F. 100 – 499	❒	❒
G. 50 – 99	❒	❒
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J. 10 – 19	❒	❒
K. 1– 9	❒	❒

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60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
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31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Mgt.
CORPORATE MANAGEMENT
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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No

4. How many people are employed at this location and in your entire organization, including all of its branches, divisions and subsidiaries? (Select only one per column.)

	1. At this location	2. Entire Organization
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B. 10,000 –19,999	❒	❒
C. 5,000 – 9,999	❒	❒
D. 1,000 – 4,999	❒	❒
E. 500 – 999	❒	❒
F. 100 – 499	❒	❒
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LANCast/Casat Technologies, Inc. has introduced the SuperHub family of Ethernet products.

The Nashua, N.H., firm said the line features 12- and 24-port basic versions of Simple Network Management Protocol (SNMP)-ready client and master hubs. Up to five hubs can be cascaded in any combination of 12- and 24-port units to create a hub stack.

The stacks can be segmented or managed as a single unit with any management system that supports SNMP.

The SuperHubs feature a chip set that allows continuous monitoring of as many as 12 ports per hub. This lets network managers monitor and control up to 60 ports at a time on a managed stack.

Pricing for the 12-port basic unit starts at $640. The 24-port basic unit starts at $1,060.

▶ *LANCast/Casat Technologies*
(603) 880-1833

Palindrome Corp. has introduced Storage Manager 1.0, a product for Windows NT network administrators.

According to the Naperville, Ill., company, Storage Manager 1.0 integrates backup, archiving and hierarchical storage management into a single product. It lets administrators of Windows NT networks perform traditional backup and restore, create permanent file archives and manage server growth by migrating inactive files to secondary storage.

Storage Manager 1.0 was designed to protect and manage NT and Novell, Inc. NetWare servers. It supports the NT Registry and NetWare Directory Services.

Pricing for Storage Manager 1.0 starts at $1,995 for a single-server license and $3,595 for a multiserver license.

▶ *Palindrome*
(708) 505-3300

Logicraft Information Systems, Inc. has unveiled LanCD 3.2 Macintosh Client, a CD-ROM networking product.

The Nashua, N.H., company said the product lets any Macintosh computer in an Ethernet environment access CD-ROM applications from the same server as the network's PCs. It eliminates the need for separate CD-ROM-sharing resources for Macintosh and PC users.

LanCD 3.2 Macintosh Client uses a standard Macintosh installer/deinstaller and brings up CD-ROMs as Macintosh applications that appear as icons on the desktop. Each LanCD server supports up to 1,280 CD-ROM volumes and 56 SCSI devices.

Pricing for LanCD 3.2 Macintosh Client starts at $695 for a 10-user license.

▶ *Logicraft Information Systems*
(603) 880-0300

Microsystems Engineering Co. has introduced SysDraw, a network illustrator.

According to the Lombard, Ill., company, SysDraw is a network design and documentation tool that includes drawing tools, drill-down and data-linking features and more than 4,300 images.

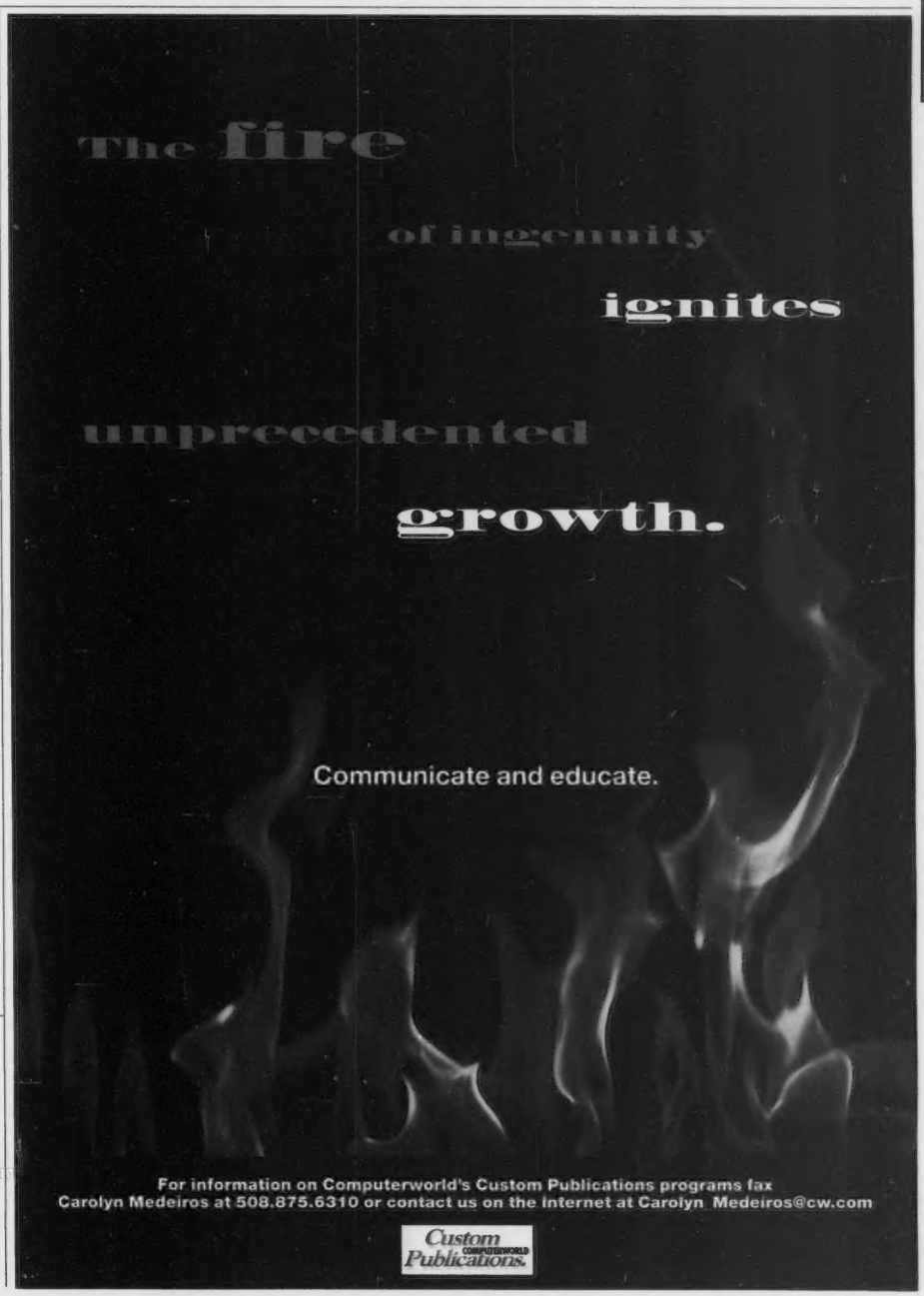
The data-linking features include SQL/Open Database Connectivity-compliant relational databases and support more than 30 other database file formats.

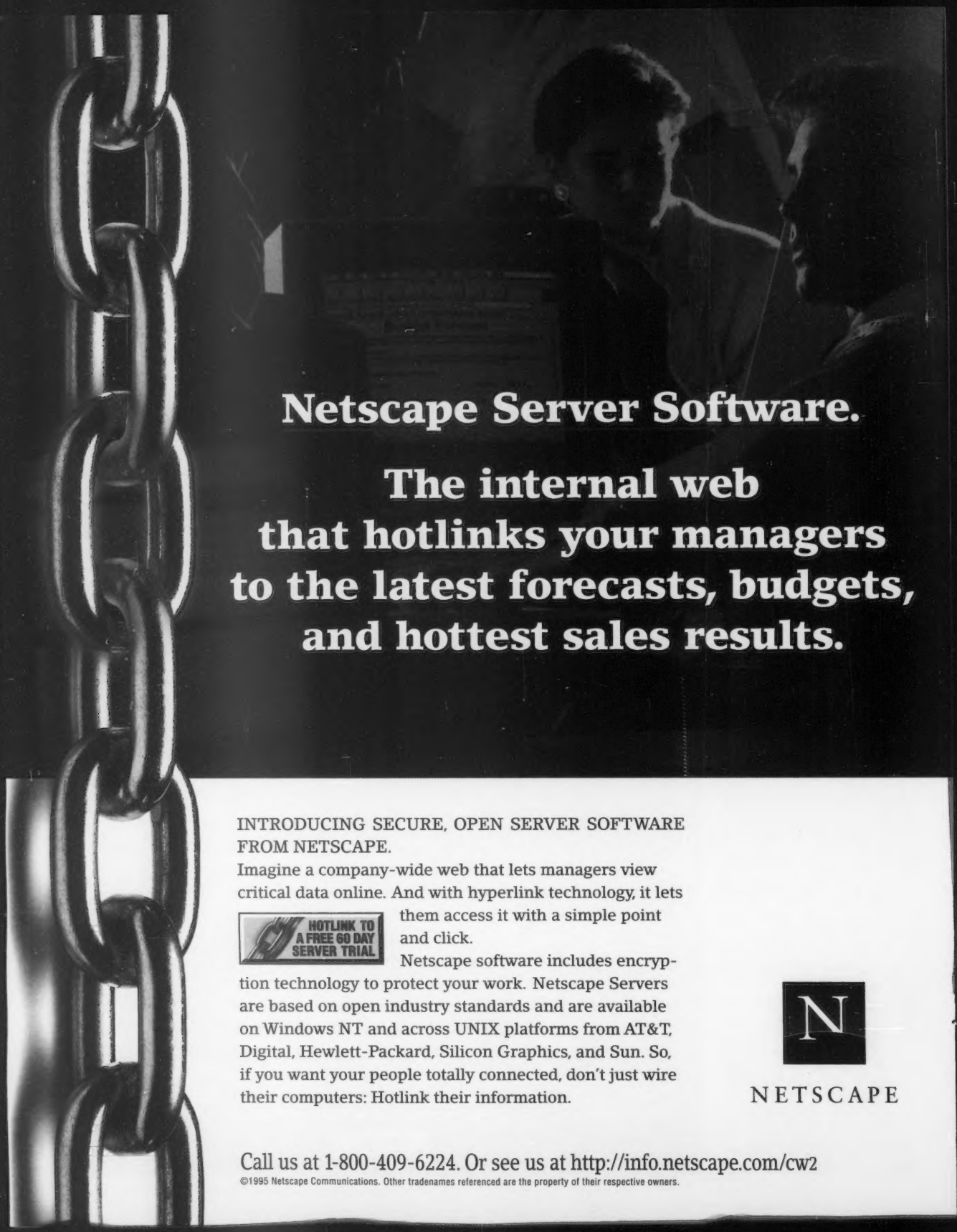
SysDraw costs $995.

▶ *Microsystems Engineering*
(708) 261-0111

Product short

The Linksys Group, Inc. has introduced the five-port EtherFast Switching Hub that lets standard 10M bit/sec. 10Base-T network segments communicate directly with 100M bit/sec. Fast Ethernet networks. It has four 10M bit/sec. ports and one 100M bit/sec. port. Cost: starts at $1,999. The Linksys Group, Irvine, Calif. (714) 261-1288.





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MAINFRAME/WEB TRANSLATOR DEBUTS, 58
NEW PRODUCTS, 58

The Internet

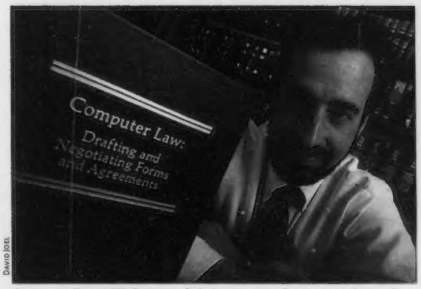
WORLD WIDE WEB • INTRANETS • ON-LINE SERVICES

Firms spell out appropriate use of Internet for employees

By Mitch Wagner

Employers who give Internet access to their staffs are sending out a message: Look at porn, lose a paycheck.

Faced with international controversies over pornography and hate speech on the Internet, employers are setting policies to limit Internet usage to business purposes. They also are penalizing employees who send out abusive electronic mail, "flame" people on Usenet or visit inappropriate sites on the World Wide Web. And they are cautioning employees to remember that out on the 'net, they represent their companies, not just themselves.



David Bohl

Attorney Barry Weiss *says it is important for companies to develop detailed 'net usage policies to avoid risk and ensure that this new communication tool is used effectively*

"Employees are under the misapprehension that the First Amendment applies in the workplace — it doesn't," said Neal J. Friedman, a Washington attorney who specializes in on-line law. "Employees need to know they have no right of privacy and no right of free speech using company resources."

Employers are hitting the hardest when sex and pornography are involved. Consider these recent examples:

- Some 98 employees at Pacific Northwest National Laboratory in Richland, Wash., were disciplined last month when audits of system usage revealed that they used lab computers on their own time to access pornographic sites on the Web.
- Kmart Corp. in Troy, Mich., fired webmaster Rod Fournier in November when he created a hot link from a single period at the end of a sentence on the Kmart home page to his personal home page [CW, Nov. 20]. That page, in turn, contained a link to a site that spoofed the controversy over Internet pornography.
- At Sandia National Labs in Albuquerque, N.M., 64 employees, contractors and college interns were disciplined in August and September for reading pornography on company time and their own time. The heaviest offenders were suspended without pay for up to a month, while others received shorter unpaid suspensions and letters of reprimand.

For most companies, an Internet usage policy is straightforward. It generally informs employees that their Internet access is a company resource that should be used only for their jobs.

"3M's policy is simply put: that the Web must be used for business purposes. If people get on and abuse it, then you've got a problem with that individual and need to handle it," said Luke Crofoot, a marketing services supervisor at 3M in St. Paul, Minn.

Education, not control

Crofoot said he opposes draconian measures to control Internet use. "What really gets under my skin is the people who want to censor the world and place on me the burden of creating the infrastructure of what should and should not be censored," he said.

Trying to control employee use of the Internet is nonproductive, he added. It is better to educate people about how to use the Internet and accept that at first, they will spend a lot of time on-line looking up nonbusiness-related content, Crofoot said.

That approach may work for companies that give employees a lot of independence, said Barry Weiss, a partner

Appropriate use, *page 58*

http:

Appropriate use on the 'net

We were sorely tempted to post a list of dirty Web sites here and call it, "Places to Look at If You're Itching to Get Fired."

But then we figured – nahhhhh.

So instead, we decided to post a list of resources to help information systems managers develop appropriate usage policies for the Internet.

HOT SITES

- Start with the law: The law firm Gordon & Glickson maintains a small library of papers about the Internet and on-line commerce issues in the "Output: Publications" section of its home page at **http://www.ggtech.com.** Titles that can be downloaded include, "Everybody's Gone Surfing (Including State Governments): The Impact of the Electronic Age on the Workplace," and "Implementing Sound Corporate Internet Policies: Legal and Management Issues."

- Experts say that a good grasp of on-line etiquette, or "netiquette," is a good place to start formulating an Internet usage policy. "The Net: User Guidelines and Netiquette," is at the Florida Atlantic University site at **http://rs6000.adm.fau.edu/rinaldi/net/index.htm.**

- Florida Atlantic University's own Internet usage policy is a good launching point for corporate 'net policies. It warns against giving out user IDs and passwords, forging E-mail and attempting to crack in to the system. The policy can be found at **http://www.fau.edu/rinaldi/net/netpol.txt.**

- Users can find a sensible-looking Internet usage policy at **ftp://ftp.merit.edu/documents/fyi/fyi_28.txt.** The document appears to come from Intel Corp., but there's no apparent way of knowing if that's authentic (and the difficulty of judging the authenticity of documents on-line is an Internet lesson in and of itself).

– Mitch Wagner

Web forms tools ease Internet server management

System Management Arts, Inc.
White Plains, N.Y.

InCharge for the Internet

This tool kit installs and manages key Internet services – Web, file transfer protocol, E-mail, domain name service and newsgroups – on multiple servers. Administrators use a Web browser to work with simple configuration and policy forms on the InCharge server.

Benefits	Requires
• *Novice managers don't need to know Unix commands* • *Unix-savvy managers can work faster with more servers* • *Interface prevents misconfiguration and eliminates syntax errors* • *Any site can restrict access to enforce usage policies*	*Solaris-based server with at least 32M bytes of RAM and 500M bytes of disk space*
Availability	
Scheduled to ship mid-February for $7,000 per server	

By Patrick Dryden

An Internet management tool coming this month promises to mask the complexity of Unix service administration behind the friendly face of a browser.

InCharge for the Internet can empower novices or unburden gurus by automating the setup and maintenance of major Internet services (see chart).

The software will come from System Management Arts, Inc. (Smarts). The start-up was founded by former IBM researchers in White Plains, N.Y. InCharge for the Internet is the first implementation of Smart's event-correlation and modeling technology in a package focused on this hot new management area.

"It helps those who may not have spent their lives with Unix systems. [It] extends a seasoned administrator's capabilities to multiple servers," said Rick Villars, an analyst at International Data Corp. in Framingham, Mass. Some Internet service providers are evaluating InCharge for the Internet to feed the need for management as organizations scramble to deploy access services for their users.

"A lot of customers for our leased-line connections are very gung ho about the Internet but don't know how to make it work," said beta tester Denis Martin, director of information systems at Nysernet, Inc. in Syracuse, N.Y., an Internet service provider.

"We could drop InCharge on their LAN so [that] they could locally administer their domain, provide all the services and monitor what's going into and coming out of the Internet," Martin said.

Some Internet service providers and Sun Microsystems Computer Corp. offer turnkey Internet servers that are configured with such services. But InCharge for the Internet streamlines management through forms and policies

Forms tools, *page 58*

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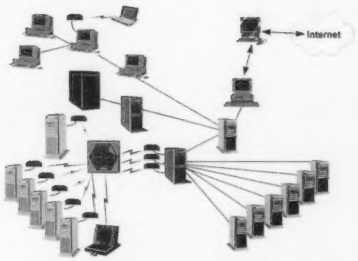

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Appropriate use

CONTINUED FROM PAGE 55

at Gordon & Glickson, a Chicago law firm that specializes in information technology legal issues. But for firms that want more control over their employees, the best solution is to develop detailed Internet usage policies, he added.

Companies that have detailed Internet usage policies in place or are developing them include The Chase Manhattan Bank NA, Johnson Controls, Inc., Pioneer Hi-Bred International, Inc. and Monsanto Co. [CW, March 6, 1995].

"The Internet is essentially a communications tool," Weiss said. "It's important that companies think about the different ways that information will be communicated. They want to define policies and procedures to avoid risk so that this new technology will be used in an effective way."

Just research, boss

Pacific Northwest National Laboratory became suspicious that employees were abusing the Internet when the staff set up sniffers to measure 'net traffic and found lots of hits going out to *Playboy* and *Penthouse* sites.

Forms tools

CONTINUED FROM PAGE 55

that are accessible from any World Wide Web browser.

InCharge for the Internet integrates and automates the installation, configuration and management of Internet servers. And it allows simpler administration than scripts offer, Martin said. Better yet, "its unique intelligence and consistency checks make sure your changes don't screw anything up," he said.

"Adding a news feed takes three minutes to answer questions on two hypertext-based screens, instead of half an hour and 25 steps in command mode that are easy to mess up through syntax errors."

—Denis Martin, director of information services, Nysernet

The product's interface links to Unix to eliminate the possibility of syntax errors occurring when a user directly enters commands and edits files. The underlying modeling software validates all configurations before start-up.

During operation, InCharge for the Internet monitors each service to deal with problems. For example, it tracks decreasing disk space and clears newsgroup files according to preset policies for expiration dates.

Administrators can apply policies at the central server and delegate them across distributed servers for consistency. InCharge for the Internet can help enforce Internet usage restrictions by limiting Web cruisers to their lunch hour or removing access to specific newsgroups.

InCharge also handles backups and provides reports on service usage.

Simware fires Salvo in war to meld mainframes to Web

By Kim S. Nash

Mainframe shops that are trying to do real work via the Internet are finding it tough to get there from here.

"Companies that do their core business on stable legacy applications should be able to keep them, even if ... they want to bring in new technology" such as the World Wide Web, said John Girard, an analyst at Gartner Group, Inc. in Stamford, Conn.

Intranet applications are supposed to give users easier access to corporate data than conventional networks.

No easy way

But in fact, few vendors promise simple ways to connect mainframe systems to the Internet or Web.

That is partly because character-based mainframes aren't among the Web's favored languages, and the Web's Hypertext Markup Language (HTML) isn't old hat to mainframes. But at least one vendor — Simware, Inc. in Ottawa — hopes to fill that gap with its new Salvo utility.

There is nothing new about screen scrapers that reformat green-on-black mainframe characters to look graphical. But Salvo was designed to go one better. It translates that same staid data into a format that Web browsers can read, which at least starts to address the issue.

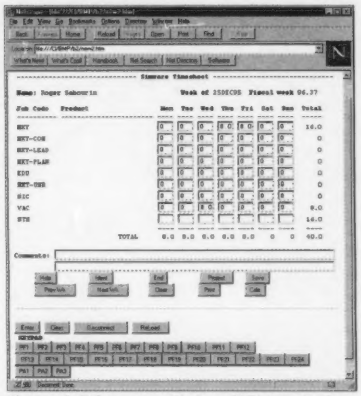
Any application that uses a 3270 terminal to connect to an IBM mainframe can be translated to a format that is easier on the eye.

Salvo supports browsers that conform to HTML 2.0 specifications such as Netscape Communications Corp.'s Navigator and Microsoft Corp.'s Internet Explorer.

"There's tremendous interest in this kind of thing" among mainframe shops, according to Jim Rawlings, an officer at Share, Inc., an influential group of IBM big iron users.

Eager beavers

Many members of Share have been eager to test intranet applications but need to be sure they don't have to remake entire information systems departments in the process, he said.



Simware's Salvo *reconstitutes a 3270 terminal screen showing a timesheet application into a Web-friendly format*

Rawlings, who also is a technical specialist at the Bank of Montreal in Toronto, said he plans to experiment with Salvo.

A single-user version of Salvo can be downloaded for free at http://www.simware.com.

A server edition is due out this quarter and will cost $500 per concurrent session. Typically, 10 users can be active during each session, Simware officials said. Translation for 5250 and VT200 terminals is expected this summer.

MEDICAL ALERT...

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The Workstation Group

DeltaPoint, Inc. has unveiled QuickSite, a product for creating World Wide Web sites.

According to the Monterey, Calif., company, QuickSite helps beginners create a Web site by using automatic Hypertext Markup Language (HTML) code generation and page-link creation tools. It features a point-and-click primer that guides users through the design and building process.

QuickSite includes templates that can be modified. The templates were designed to give sites a consistent look.

QuickSite includes a Page Wizard feature that automatically updates all links when changes are made.

It also features page-link generation for streamlined management and database technology, which lets users incorporate external HTML files as well as Web page components.

QuickSite costs $99.

▶ *DeltaPoint*
(408) 648-4000

Norman Data Defense Systems, Inc. has introduced Norman Firewall.

According to the Fairfax, Va., company, Norman Firewall provides a single, secured route for data to travel between local networks and the Internet. It is configurable and provides accountability through user identification and authentication. It includes sensitivity labeling, file filtering and monitored file access and storage as well as programmable control for viruses.

Norman Firewall features 10M bit/sec. LAN speed, one to three LAN/Internet interfaces and up to 64 asynchronous ports.

Pricing for Norman Firewall starts at $25,000 for a standard configuration.

▶ *Norman Data Defense Systems*
(703) 573-8802

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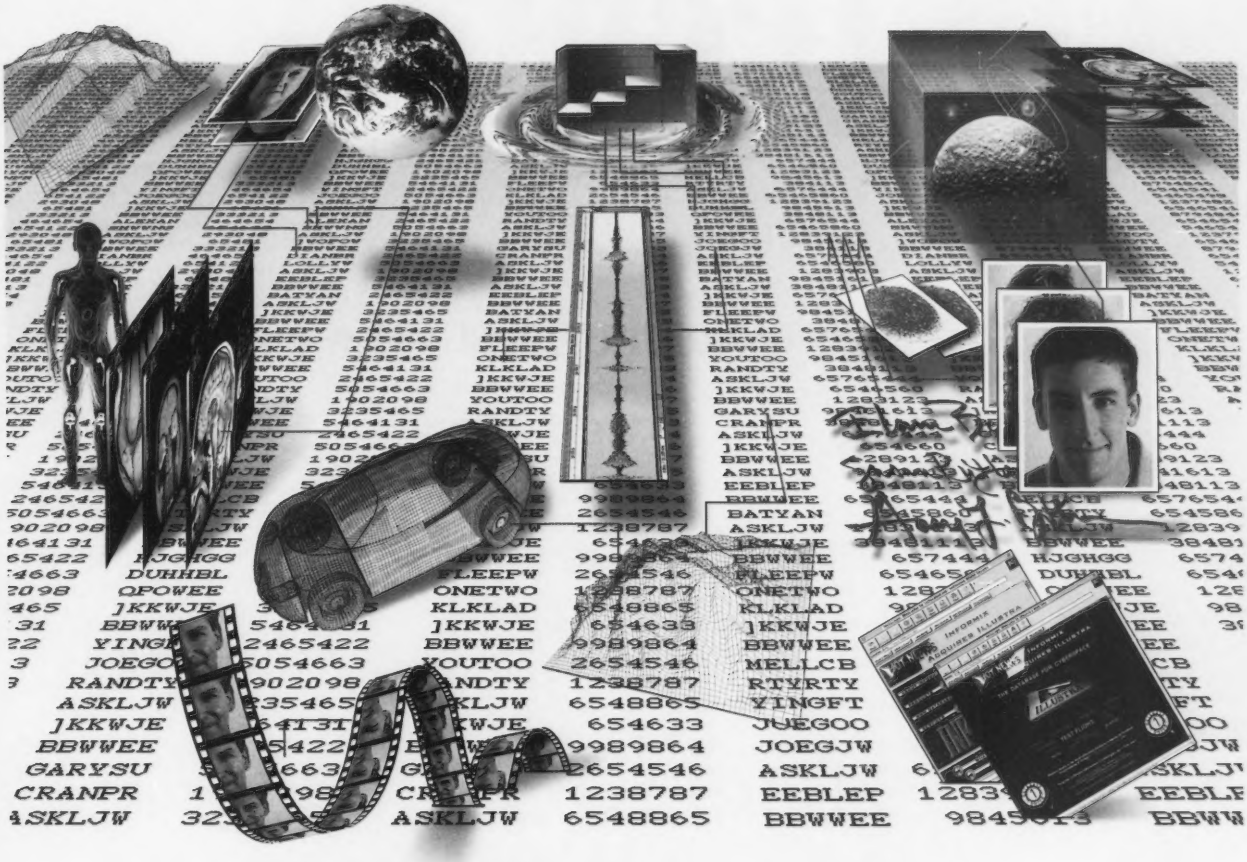

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41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Mgt.
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DEPARTMENTAL MANAGEMENT
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OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No

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B. 10,000 – 19,999	❒	❒
C. 5,000 – 9,999	❒	❒
D. 1,000 – 4,999	❒	❒
E. 500 – 999	❒	❒
F. 100 – 499	❒	❒
G. 50 – 99	❒	❒
H. 20 – 49	❒	❒
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50. Business Service (except DP)
60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
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21. Dir./Mgr. MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Administrative Services
23. Dir./Mgr. Sys. Development, Systems Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Mgt.
CORPORATE MANAGEMENT
11. President, Owner/Partner,General Mgr.
12. Vice President, Asst. VP
13. Treasurer,Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No

4. How many people are employed at this location and in your entire organization, including all of its branches, divisions and subsidiaries? (Select only one per column.)

	1. At this location	2. Entire Organization
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B. 10,000 – 19,999	❒	❒
C. 5,000 – 9,999	❒	❒
D. 1,000 – 4,999	❒	❒
E. 500 – 999	❒	❒
F. 100 – 499	❒	❒
G. 50 – 99	❒	❒
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CASE STUDIES • TRENDS • OUTSOURCING

Phoning Philly

City's computerized operations support center is a big help

By Julia King

Until recently, "Yo, Joe" support was one of the more reliable kinds of technical assistance available to the city of Philadelphia's 7,000-plus government workers who use computers.

With a single person taking calls from city employees in 45 departments using 100 different applications, the official help desk was swamped.

"We were supplying answers to 26,000 calls a year, but the reality was there were probably twice that number of calls that users wanted to make but couldn't get through," said John Carrow, chief information officer for the city.

Today, those same users have 24-hour access to a computerized operations support center.

Carrow said Philadelphia is one of only a handful of large municipalities to implement a single citywide support center.

During peak hours, the support center, which began operating in November, is staffed with five technicians who enter and track problems in client/server-based help desk software from Chalfont, Pa.-based Astea International, Inc. The software runs on Pentium-based PCs linked over a Novell, Inc. NetWare-based LAN and tied to a Hewlett-Packard Co. server.

Each time a call is entered, the system automatically opens a case and searches for possible solutions using the software's built-in artificial intelligence technology. As cases build up, a kind of library containing answers to specialized problems is established. On subsequent calls, technicians can use English-language queries to search the library to quickly retrieve answers.

OFFICE OF THE CITY REPRESENTATIVE, CITY OF PHILADELPHIA

John Carrow *is CIO for the city of Philadelphia, which has bulked up its help desk*

Handling a crisis

The Department of Human Services, which operates a child abuse and neglect hot line among other services, already has tapped into the new center with much success, according to Daljit Ranajee, the department's director of information systems.

For example, the center became involved when a mainframe-based application that PC-based staffers use in connection with the child abuse hot line blipped off workers' screens, creating a potential crisis.

"We called the support center, and they found the problem and were on top of it until it was solved," Ranajee said.

"Before [the support center], if a line went down, it went down for hours. The help desk was kind of helpless," she said.

In good health

A single point of contact for support is the biggest advantage the center brings to city Department of Health staffers, according to Carolyn Crowe, the department's IS director.

"We have doctors and nurses spread out over 17 different locations and working all kinds of hours," Crowe said. "Now

Philadelphia, *page 65*

Prudential's James A. Sharkey, *left, shown with* **William T. Rush,** *says most Web sites are 'a dime a dozen'*

On Web, Pru targets users

By Thomas Hoffman

NEWARK, N.J.

Since taking the helm at The Prudential Insurance Company of America in late 1994, Arthur F. Ryan has moved swiftly to overhaul the sprawling financial services giant.

The one-time information systems chief at The Chase Manhattan Bank NA is trying to inject new life into "The Rock" by revamping its sluggish insurance business and adding resources to its growing money management and managed health care businesses.

Given Ryan's technical acumen, it is hardly surprising that Prudential is putting so much effort into its recently launched World Wide Web site (http://www.prudential.com).

The site, which went live in late December, was developed by CKS Interactive, a Cupertino, Calif.-based Web content developer that helped develop Web sites for NBC and Sony Entertainment. A Sun Microsystems, Inc. SPARCserver 20 machine guards Prudential's firewalls.

Prudential's Web site features seven areas designed to help visitors deal with a spectrum of personal financial needs, from determining retirement needs to funding a college education.

If, for example, a visitor were interested in retire-

Prudential, *page 65*

Sun's remedy

Since launching its SunSpectrum support program in 1993, Sun has been working to address its historically weak customer service record. The latest batch of offerings announced last month include the following:

Sun Vendor Integration Program, to service Sun hardware and system problems in conjunction with Computer Associates, Lotus, Informix, Oracle, Sybase, SAP AG and Tivoli Systems.

Consulting services, to help customers implement enterprise systems and manage networks and data storage systems, available in April.

Education programs, including courses in the Java programming language and Internet security.

Sun shows users new helpfulness

By Michael Goldberg

Call it Sun's bar mitzvah party.

When 14-year-old Sun Microsystems, Inc. recently unveiled an expanded set of customer support programs, it also showed a sense of maturity in dealing with users, observers said.

Highlighting the slate of offerings by the SunService branch was the Sun Vendor Integration Program (VIP), an extension of the SunSpectrum service plan started in 1993.

Sun aims to become a one-stop service outlet for users — a mandatory move if it wants to remain a top commercial hardware supplier and compete against rivals IBM, Hewlett-Packard Co. and Digital Equipment Corp., said Kurt Johnson, an analyst at International Data Corp. in Framingham, Mass.

"They can't afford not to do this," he said. Customer support has historically been a weak spot for Mountain View, Calif.-based Sun.

With Sun VIP, Sun is taking responsibility for helping users deal with snafus in hardware, operating systems and software, with the help of independent database and software vendors (see chart).

Brian Slater, managing director at Chemical Bank's Global Banking Division in New York, said he sees the Sun VIP program as a way to save time and avoid headaches.

"Like most corporations, we tend to have significant relationships with many vendors. And when there's a problem, you tend to get the fingerpointing — that it's 'not my problem'

Sun, *page 65*

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COMPUTERWORLD

Everything you need to know

Carriers target SNA shops as frame-relay users

Option eliminates the need for leased lines

By Neal Weinberg

Rerouting SNA traffic from leased lines to public frame relay is emerging as the year's hottest trend in fast-packet networking.

Within the past three months, all the major long-distance carriers have begun offering users a way to load their IBM legacy cargo onto the frame-relay freight train.

Last week, MCI Communications Corp. took the issue a step further, offering a bundled service that includes SNA-access controllers from Memorex Telex Corp.

Frame relay's initial popularity was as a LAN interconnect, but that has changed, said Tom Nolle, an analyst at CIMI Corp. in Voorhees, N.J. In fact, Nolle predicted that most of the traffic added to frame relay this year will be routed from SNA networks.

It is easy to see why carriers are targeting SNA shops — that is where the money is. SNA mainframe shops account for a good chunk of the Fortune 500, he said. He predicted "nearly two-thirds of all the money made in frame [relay] out past the year 2000 will be made carrying SNA traffic."

MCI's program for migrating SNA networks to frame relay includes:

- Joint marketing arrangement with Memorex Telex, which makes controllers used to access SNA networks
- Private Virtual Circuit Prioritization
- Frame Relay Access Device managed services
- Synchronous Data Link Control upgrades

For SNA shops, the advantage of frame relay is that it is 25% to 40% cheaper than private lines, Nolle said.

Blood Systems, Inc., a Scottsdale, Ariz.-based company that operates blood banks, has been running its SNA traffic over frame relay for two years.

Tom Rowan, networks/operations manager at the company, said frame relay offered an affordable LAN interconnection for 40 sites nationwide and a way to move SNA traffic off expensive and slow 9.6K bit/sec. leased lines and onto a 56K bit/sec. public network. It also provided enough bandwidth to support the transfer of future applications off the mainframe and into a client/server environment.

Rowan said frame relay has saved Blood Systems "a considerable amount of money." And the conversion to the Worldcom LDDS network "went extremely smoothly," he added.

Ryder System, Inc. in Miami recently switched its SNA traffic from leased lines to frame relay at 80 locations across the country. Joel Steigelsest, senior manager of technical planning, said cost savings are already about 50%.

Trends topper

Such savings are one reason Vertical Systems Group, Inc. in Dedham, Mass., has identified SNA-over-frame-relay as one of the top trends in 1996, analyst Rosemary Cochran said.

"Traditional SNA legacy networks are going away and going away pretty rapidly," Cochran said. When companies start to investigate alternatives, frame relay becomes an attractive choice for carrying TCP/IP traffic and a mix of SNA and TCP/IP.

Nolle adds that customers such as MCI and Sprint Corp. are looking to win frame-relay business from AT&T Corp.'s private-line customers as a way to get their feet in the door. "Once you sell a big fat pipe to a customer, you own him," he said.

Prudential

CONTINUED FROM PAGE 61

ment planning, he would click on the appropriate icon to calculate how much money he would need to squirrel away each month to live comfortably in his golden years. That feature will become available this month, said William T. Rush, vice president of IS at the nation's top seller of individual life insurance policies.

That interactive approach is different from those of most cyberinsurers, whose sites are more of a marketing guide to the company, said James A. Sharkey, vice president of research at Prudential's Marketing & Database Resource unit.

Web sites "are a dime a dozen," he said. "We focused on our customers and their needs since we're assuming that we only have [cyber]surfer attention for a few seconds."

The virtual seven

To help grab that attention, Prudential has included an interactive story line with seven virtual people — fictional characters who face a variety of lifestyle and financial choices. Web site visitors can influence the lives of these virtual people by voting on the multifarious choices they have to make.

Prudential's site got 65,000 hits in its first two weeks on the Web. To help make sense of the hits, Prudential has tapped Internet Profiles, Inc. (I-Pro), a San Francisco-based Internet ratings firm that crunches the numbers to determine where the hits are coming from, how many visitors they represent and which of the seven Web site areas are frequented most.

Prudential has been using I-Pro for only a few weeks, so it hasn't yet gathered any quantitative results, Sharkey noted.

Sharkey wouldn't disclose how much Prudential spent to launch the site nor would he offer any revenue estimates. That is not surprising, industry pundits said, since interactive insurance is still uncharted territory.

"Everybody's doing it, and nobody is getting much of anything" from launching insurance-based Web sites, said John Alexander, president of Business Technology Consulting, Inc., a Portland, Maine-based consultancy. Alexander, the former chief information officer at Unum Corp., said because insurance products are sold by agents and not actively sought by consumers, a passive medium such as the Internet isn't going to work as an aggressive sales tool.

"But if you look at [the Internet] as a marketplace with 30 million people walking by, you'd be a fool not to experiment with it," he added.

That is just what Sharkey and his peers say. "This is one big research experiment," he said. "We're all learning together."

Sun shows users new helpfulness

CONTINUED FROM PAGE 61

— and you get a slower response," he explained. "What we're looking for is to have a single-vendor relationship, like when IBM was everything [to mainframe users].

"It means Sun is growing into a viable supplier for the data center," said Slater, whose division uses Sun workstations and servers.

Changes under way in the Sun user community make it doubly important for the vendor to cater to customer needs.

The user constituency is growing and adding technical neophytes to its traditional base of scientific and academic workstation users, said John Mangrich, a board member of the national Sun Users Group and a technical support specialist at the University of California at Irvine.

"The users group used to be the few Unix gurus who were well aware of Sun's hardware and how to use it. Now, there are people who are new to Sun — and new to computing," Mangrich said.

"We have people at some meetings who come in and say, 'We just got this Sun system in from a reseller or a systems integrator. Now what?' " he said.

Philadelphia

CONTINUED FROM PAGE 61

they can call one number and there will be a person at the other end who can capture the nature of their problem, then route it to the appropriate technician."

Under the old system, "we never had a handle on how big our problems were, so the concern I have is whether we sized and staffed the [center] properly," Carrow said.

Time will tell. But meanwhile, he added, "We're walking into this thing knowing we have a far better capability than we had."

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Managing

FLIGHT

When Boeing's IS team went to work on the 777, it didn't just help build a new airplane. It built respect for IS.

By Rochelle Garner

RICK FRISHMAN

Larry Olson, Steve Lalley, Matt Posivio and Bob Young (left to right) were among the 1,000 IS staff handpicked for the 777 project. 'The key to selection, whether they realized it or not, was their ability to work together,' Olson says.

Don't tell Larry Olson that teamwork is an empty platitude. Olson, director of information systems at The Boeing Co.'s 777 project, and his staff worked with, listened to and pitched in alongside thousands of employees who created the world's newest airliner.

In the process, Olson and his staff transformed themselves from second-class citizens to peers of their technical colleagues. How they created that perceptual shift offers valuable lessons to managers everywhere who struggle to fulfill the IS imperatives of teamwork, open communication and customer focus.

The big 'T'

It started with a mandate from senior management: Everyone working on the 777 project, which they dubbed the "Triple 7," truly would be engaged in a team effort. And they meant it. The most senior managers involved in the project — including the general manager of the 777 project, the director of engineering and Olson (who was the fifth person to join the effort) — met weekly with an "organizational behavioral development specialist" for nearly a year. The goal was to teach managers the art of teambuilding.

And build a team they did. Eventually they assembled 8,000 employees from engineering, manufacturing, IS, sales and human resources to work on the 777. It was the first time IS was part of the team. Olson and his handpicked managers interviewed thousands of staff members from elsewhere in IS. They looked at candidates' past job performance and talked to their peers — all with an eye toward how well each one could function in, and contribute to, a team. "The key to selection, whether they realized it or not, was their ability to work together [and] their technical capabilities," Olson says. Eventually, 1,000 men and women from IS were tagged to work on the most exciting project to hit Boeing in years.

The effort marked a sea change for Boeing. Previously, the company had comprised engineering and manufacturing fiefdoms. Designs created in one area were "tossed over the fence" to the next. For the Triple 7, there were no fiefdoms. The name of the 777 project would be "Working Together," written on large banners that hung high above the factory floor.

That meant that each of the 238 design/build teams responsible for designing and manufactur-

▶ **FIND OUT MANAGERS' FAVORITE WEB SITES, TRADE SHOWS AND TRAINING COURSES FOR TRACKING CLIENT/SERVER TRENDS.** TURN TO PAGE 68.

CREW

ing such things as doors, wiring, hydraulics and payload would include at least one person from Olson's IS staff. It also meant no more life-size, plywood mockups.

Instead, each part would be computer-designed and computer-fitted into the world's largest three-dimensional puzzle before it ever reached the factory floor. The goal was to halve the number of rework and design changes that naturally plague a project that comprises up to 2 million parts and involves more than 200 disciplines.

"Computers don't design airplanes, people do," Olson says. "All we provided was the computing tools and a group of technical folks who [could] solve complex problems and communicate with the different technical disciplines to help *them* solve problems."

The human element

Olson can be forgiven if his perspective has been skewed by the project's size. The "tools and technical folks" he describes in self-deprecating fashion deserve some recognition.

Consider one of the tools: the world's largest computer-aided design and manufacturing (CAD/CAM) cluster that models 3-D solids. This setup runs on eight IBM mainframes that are lashed together.

The software, CATIA (computer-aided, three-dimensional interactive applications), was developed by Dassault Aviation SA in France; it's sold by IBM. But Boeing's IS staff joined Dassault and IBM to make it possible for engineers to digitally pre-assemble each component with its interrelated part that, in all likelihood, was designed by someone half a mile away.

That's impressive. But more impressive is IS' human contribution. "This was the first airplane to be designed 100% on a computer in 3-D solids. [So] a lot of the design and manufacturing processes weren't defined," says Bob Young, manager of IS at Boeing. He headed the program's digital preassembly process.

"Because we knew and understood the technical tools, we worked closely with the process people [who also reported to Olson] in every discipline — helping to define the methodologies for how we all worked," Young says.

And IS focused anew on working closely with the internal customer.

"Traditionally, what we would do is get a customer requirement, go solve it, brush off our hands and move on to the next problem," says Steve Lalley, now CAD/CAM manager at Boeing's site in Everett, Wash. Lalley previously was on-site support manager for the engineers at the Everett site. "Now, we close the loop, making sure that we've done what our customers requested. Now, we sit with our customers," he says.

He means that literally; IS staff members sit next to their customers as they put the procedures into practice.

Matt Posivio sat less than five feet from the other members of his payload design/build team. As one of IS' 30 support engineers for the digital preassembly process, Posivio had to demonstrate computer-aided design to one of the engineers.

"Many of these engineers were used to a process where their final product was a released piece of mylar with a part designed on it," he says.

Interloper or instructor?

No, it wasn't particularly easy. Some in his group considered Posivio an interloper. "At first, there was a lot of testing of this new guy from computing," Posivio says. "But as I sat down and worked with them, there came a time of mutual trust and respect."

Mutual trust and respect are the traits most sought by IS people everywhere. What was Boeing's secret? "For the first time, engineers depended on the IS guy for helping to get their designs into the computer, sharing their designs with everyone else and working through the process issues," Young says. "We were able to deliver, and that's how the respect came."

IS became a stronger, better organization. Everyone in Olson's group agrees that people now can speak honestly to each other at any level of the hierarchy. Barriers taken down, after all, are hard to rebuild.

Those who worked on the Triple 7 are convinced of the need for customer focus. "It's the virtual airplane concept," Young says. "But you can't focus on computing as the end-all — you have to focus on the customer requirements."

Which is what IS did. The result: Instead of cutting design changes and rework by 50%, Boeing's 777 team achieved a 60% to 90% savings.

Equally important, Boeing last month announced it had achieved 68% market share in the airline industry, and the 777 has pulled in more than 100 orders.

It's an achievement that the IS staff shares with its business colleagues. And that, after all, is the point. ■

Garner is a freelance writer in San Carlos, Calif.

Search me

Have they finally invented a Shell Answer Man for computer professionals?

Inquiry.com, a San Mateo, Calif., start-up, has launched a search engine developed for information systems professionals that lists product information, developer tips and on-line industry publications.

The service **(http://www.inquiry.com)** is free to end users; Inquiry.com charges vendors for sales leads generated.

With so many search engines available, we wondered, why use inquiry.com? An informal test yielded mixed results.

Following pointers to inquiry.com's object-oriented section, "Ask the OO Pro," uncovers a fairly rudimentary question-and-answer list.

We compared this with another free search engine, Infoseek Corp.'s Infoseek.

Using this engine, a search for "object-oriented" finds a newsgroup list of frequently asked questions.

Eureka! The search turned up more information about this technology than you'll probably ever need.

Reed Tausig, president of Inquiry.com, says the technical tips section is skimpy because it is new. He says the company is hiring editorial staff to beef it up.

Inquiry.com is helpful to users who call up a list of vendors in a given field. This information is difficult to hammer into a search with general-purpose engines. But results are spotty.

There is, for instance, a meaty list of database management system vendors, but the list of Internet vendors is thin, and many categories (desktop publishing, for example) aren't there at all.

The reason is that vendors must become Inquiry.com clients to get on the menu. Otherwise, information about them is limited to articles from the trade press. This is the product's biggest drawback.

Inquiry.com hopes IS professionals will use the product to contact vendors; a clever "Action Item" button makes that easy. This is a nice feature.

You can't argue with the price, and Taussig says the service already gets 2,500 visitors a week.

If your vendor of choice is an Inquiry.com client, the service is quite useful. Otherwise, the jury is out — and skeptical to boot.

F.Y.I., *page 73*

KEEPING CURRENT WITH

CLIENT/SERVER

Rob Dieterich tracks down training courses, trade shows and Web sites IS managers are talking about

Tim White

Communications manager
US West, Inc., Denver

White says the place to go is the World Wide Web: "Nowhere else." White manages a trouble-ticketing system that has about 500 users. He recently needed to add an Oracle Corp. query tool to his system. He conducted a Web search that led him to a page with a list of the top recommended query tools. "I can't think of a better way to do it," he says. "The Web lets you search new stuff, old stuff, everything."

Newsgroups are too "old-fashioned," White says. "If you don't read them all the time, you have to read the Top 100 items to get the gist of what's being discussed in a particular group. It's very frustrating." Web sites often make it possible to search newsgroup archives anyway, he adds.

Dick Hudson

Chief information officer
Global Marine, Inc., Houston

Trade shows are at the top of Hudson's list of information sources. He says nothing beats the hands-on experience you can gain at Networld/Interop, for example, or DB/Expo. Shows can be a lot of work, he admits, "booth after booth, demonstration after demonstration." But reaching many vendors at once and talking to their techies pays off, he says. "We also go to the Lyceum of CIOs that Cambridge Technology Partners puts on," Hudson says. "They bring in the gurus to speak." Ten of these events have been held to date, and a half-dozen seminars are scheduled for this year. The group is small, open to CIOs only, by invitation only and "pretty high-level," Hudson says.

Ferruccio Zanotti

Director, information technology services
Sun Chemical Corp., Fort Lee, N.J.

Zanotti says the occasional trip to Barnes & Noble bookstore to check the computer section is worth his while. "I still read books," he says.

And he also is willing to go to school. Classes about Microsoft Corp.'s Windows NT taught at Chubb Advanced Training Services in Parsippany, N.J., have been useful, he says.

Zanotti also uses CD-ROMs, including those published by *Dr. Dobb's Journal*.

Zanotti says he also likes Microsoft's Technet support disks.

Carolyn Brzezinski

Practice manager
Oracle Corp., Boston

"You read, read, read, but you don't know how good anything is until you talk to someone who's tried it," Brzezinski says. Seminars, shows, user groups and business organizations are important, she says. Brzezinski says she finds the International Oracle Users Group particularly useful.

She says on-line resources also play a role. Since client/server touches so many different parts of information systems, there are many Web targets: Network, client, server and version control software sites all help. Some vendor sites, such as Hewlett-Packard Co. and Sun Microsystems, Inc., also are good, she says. Brzezinski says that with the Web, IS managers don't have to ask stupid questions. "You can investigate it privately," she says.

Current happenings

CONFERENCES

Networld/Interop: (800) 488-2883. April 1-5, Las Vegas; also offered in Atlanta in September. Web site: http://www.sbexpos.com.

DB/Expo: (800) 232-3976. April 16-18, San Francisco; also offered in New York in December. E-mail: dbexpo@blenusn.mhs.compuserve.com.

COURSE

Managing the Information Resource. Contact: Anderson School of Management, University of California at Los Angeles, (310) 825-2001; E-mail: ggildred@anderson.ucla.edu.

RESEARCH ORGANIZATIONS

Gartner Group, Inc., Stamford, Conn., (203) 316-1111. Web site: http://www.gartner.com.

CSC Index, Cambridge, Mass., (617) 492-1500.

Cambridge Technology Partners, Inc., Cambridge, Mass., (617) 374-9800. Web site: http://www.ctp.com.

USER GROUP

International Oracle Users Group-Americus: (312) 245-1579.

Robert Tabb

CIO
Ryder System, Inc., Miami

Tabb says he relies on research organizations such as Gartner Group, Inc. and CSC Index, Inc. Tabb has attended the Summit seminars that CSC Index produces. He also praises Chicago-based Andersen Consulting's seminars for CIOs. These organizations offer a vast array of tailored services. But expensive consultants aren't Tabb's only resources. He says he also sees the value of reading vendor junk mail. "The problem is you get so much that it's difficult to sort through it all," he says, but the effort can be worth it.

John Rome

Assistant data administrator
Arizona State University, Tempe, Ariz.

Rome cites his "group of buddies" at other educational and business institutions as invaluable. He also emphasizes the importance of surveying the trade press regularly. The Web also is part of his information diet. He recently was looking for easier database access and searched the Web. This led him to Seattle-based Nomad Development Corp.'s site. He was able to download for a 30-day trial a product that lets a browser be used as a simple client. ■

Dieterich is a freelance writer in Brooklyn, N.Y.

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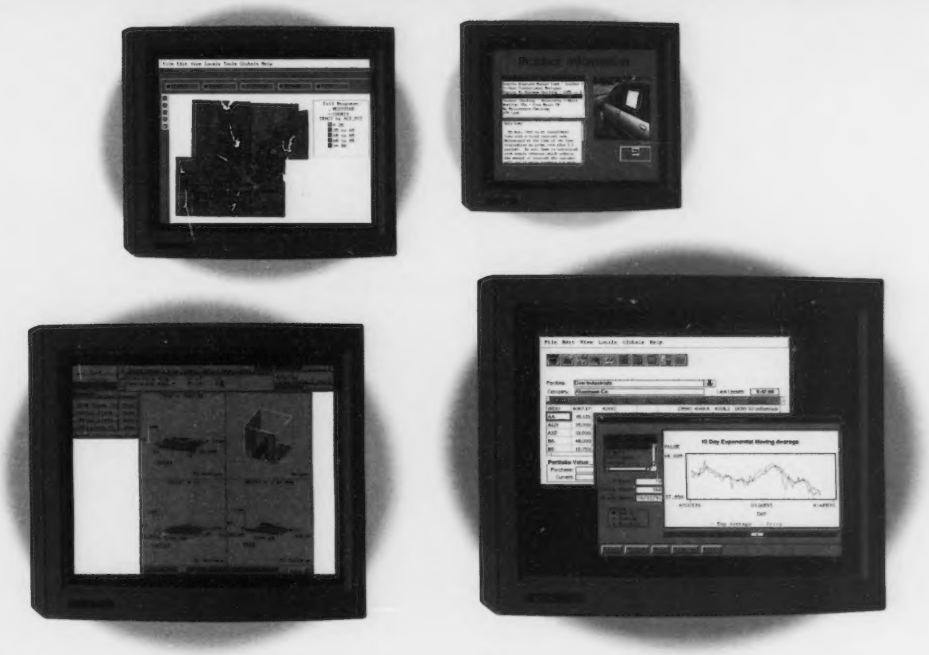

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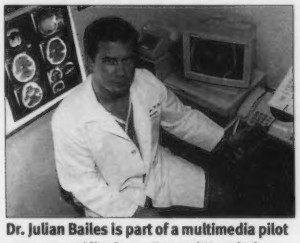
CONTINUED FROM PAGE 67

The info highway to Wellville

Lower health care costs and on-line access to top medical experts are the two benefits touted by fans of "telemedicine" — the use of digital networks to perform long-distance diagnoses of diseases and disorders.

Now a Pittsburgh-based health care institution is exploring two more possible benefits: medical education and intercontinental health care.

Pittsburgh's Allegheny Health Education and Research Foundation is in the middle of a five-year pilot program to develop high-speed digital multimedia networks that link major health care and teaching institutions throughout Pennsylvania. In the process, the foundation's Allegheny General Hospital has extended its reach beyond the Delaware River to the banks of the Nile.



Dr. Julian Bailes is part of a multimedia pilot program at Allegheny General Hospital

NeuroLink, the first phase of the project, has been in operation for more than a year. Hospital neurosurgeon Dr. Julian Bailes has remotely diagnosed more than 100 patients and saved more than $500,000 in transportation costs. Institutions share CAT scans, MRIs, X-rays and other medical data. Brain surgeons in Pittsburgh next year will be able to interact with medical students in Philadelphia while conducting brain surgery.

This month, NeuroLink services were extended to the Medical Consultation Center in Cairo, a clinic operated by Egyptian neurosurgeon Dr. Amr Mansy. The center pays for its video and computer equipment and long-distance telephone charges.

Funding for the $51 million NeuroLink project came from AT&T Corp., InSoft, Inc. and the U.S. Department of Commerce.

— Tony Baer

Todd Rundgren

March conferences

MANAGEMENT

Outsourcing "Music": The Sixth Annual Outsourcing Conference. Orlando, Fla., **March 6-8** — Contact: The Yankee Group, Boston, Mass., (617) 367-1000.

International Support Services Conference & Expo. Reno, Nev., **March 11-14** — Fee: $895 to $995. Contact: Help Desk Institute, Colorado Springs, Colo., (800) 248-5667.

IS Controllership for Centralized and Distributed Processing. Seattle, **March 13-15** — Fee: $395 to $495. Contact: Financial Management for Data Processing, San Francisco, Calif., (415) 731-3706.

Information Management Issues Conference: Growing Your Business in a Global Environment. Atlanta, **March 18-19** — Fee: $550 to $895. Contact: Financial Executives Institute, Morristown, N.J., (201) 898-4629.

Year 2000 Solutions Conference and Expo. Washington, **March 18-21** — Contact: U.S. Professional Development Institute, Silver Spring, Md., (301) 445-4400.

Internet & Electronic Commerce Conference & Exposition. New York, **March 25-27** — Contact: Expocon Management Associates, Fairfield, Conn., (203) 256-4700.

Seventh Annual Corporate Contingency Planning Seminar & Exhibition. San Diego, **March 25-27** — Contact: Disaster Recovery Journal, St. Louis, Mo., (314) 894-0276.

Conducting Marketing Research Online. San Francisco, **March 28-29** — Contact: Institute for International Research, New York, N.Y., (800) 345-8016.

Extracting Data from Transaction Processing Systems and Turning It Into an Information Strategy. New York, **March 28-29** — Contact: Global Business Research Ltd., New York, N.Y., (800) 868-7188.

INDUSTRIES

The 1996 Annual HIMSS Conference and Exhibition. Atlanta, **March 3-7** — Sponsored by the Healthcare Information and Management Systems Society (HIMSS). Fee: $495 to $995. Contact: HIMSS, Chicago, Ill., (312) 664-4467.

Re-engineering Billing Systems in the Telecommunications Industry. Washington, **March 6-7** — Contact: The International Quality and Productivity Center, Little Falls, N.J., (800) 882-8684.

Information Management in the Insurance Industry. New Orleans, **March 10-13** — Fee: $745 to $1,100. Contact: LOMA, Atlanta, Ga., (800) 275-5662.

Tackling the Complexity of Multitiered Computing in Financial Institutions. New York, **March 20-22** — Contact: Global Business Research Ltd., New York, N.Y., (212) 366-3227.

Techshow '96: The Convergence of Technology and the Legal Profession. Chicago, **March 21-23** — Contact: American Bar Association, Chicago, Ill., (312) 988-5619.

Data Warehousing Strategies for Insurance Companies. Chicago, **March 25-27** — Contact: Global Business Research Ltd., New York, N.Y., (800) 868-7188.

PharmNet: Advanced Strategies for Supporting and Marketing Pharmaceuticals on the Internet. Philadelphia, **March 27-29** — Contact: IBC USA Conferences, Inc., Southboro, Mass., (508) 481-6400.

Outsourcing vs. Insourcing Information Technology for Insurance Companies. Chicago, **March 28-29** — Contact: Global Business Research Ltd., New York, N.Y., (800) 868-7188.

USER GROUPS

SHARE Technical Conference. Anaheim, Calif., **March 3-8** — Fee: $270 to $895. Contact: SHARE, Chicago, Ill., (312) 822-0932.

SAS Users Group International. Chicago, **March 10-13** — Contact: SAS Institute, Inc., Cary, N.C., (919) 677-8000.

TECHNOLOGIES

Integrating Enterprise Network & Internet Security: Exploiting Open Systems Networks While Protecting Your Assets. San Francisco, **March 4-5** — Fee: $1,195. Contact: IBC USA Conferences, Inc., Southboro, Mass., (508) 481-6400.

Daratech CAD/CAM, CAE and EDM/PDM Strategy Workshops '96. Boston, **March 4-6** — Contact: Ruth Murphy, Daratech, Inc., Cambridge, Mass. (617) 354-2339.

Intermedia World '96. San Francisco, **March 5-7** — Contact: Reed Exhibition Cos., Norwalk, Conn. (203) 840-5634.

Documation '96 Conference & Exposition. Long Beach, Calif., **March 11-14** — Fee: $395 to $1,195. Contact: Cap Ventures, Marshfield, Mass., (617) 837-7200.

Application Development Conference & Exposition. New York, **March 6-8** — Fee: $395 to $1,095. Contact: Software Productivity Group, Inc., Westboro, Mass., (508) 366-3344, ext. 244.

Computer Telephony Conference & Exposition. Los Angeles, **March 12-14** — Contact: Telecom Library, New York, N.Y., (212) 691-8215, ext. 226.

Mobile Forum. Burlingame, Calif., **March 18-19** — Contact: Technologic Partners, New York, N.Y., (212) 343-1900.

Wireless Cable Forum: Competition Strategies for the Emerging Video Marketplace. Dallas, **March 18-19** — Contact: Kate Hinely, ICM Conferences, Inc., Chicago, Ill., (312) 540-3860.

Digital Libraries '96: ACM International Conference on Digital Libraries — Bethesda, Md., **March 20-23** — Contact: Gary Marchionini, College Park, Md., (301) 405-2053.

M Technology Association Annual Conference. Boston, **March 24-28** — Contact: M Technology Association, Silver Spring, Md., (301) 431-4070.

End-User Computing: Moving from Personal Systems to Enterprise Clients. Miami, **March 25-27** — Fee: $995 to $1,495. Contact: Gartner Group, Inc., Stamford, Conn., (800) 778-1997.

Effective Methods of Systems Testing. St. Louis, **March 25-29** — Contact: Quality Assurance Institute, Orlando, Fla., (407) 363-1111.

Software Development '96. San Francisco, **March 25-29** — Contact: Miller Freeman, Inc., San Francisco, Calif., (415) 905-2784.

Database & Client/Server World. Boston, **March 26-28** — Contact: Digital Consulting, Inc., Andover, Mass., (508) 470-3870

Calendar announcements should be submitted at least eight weeks before the event. They should include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

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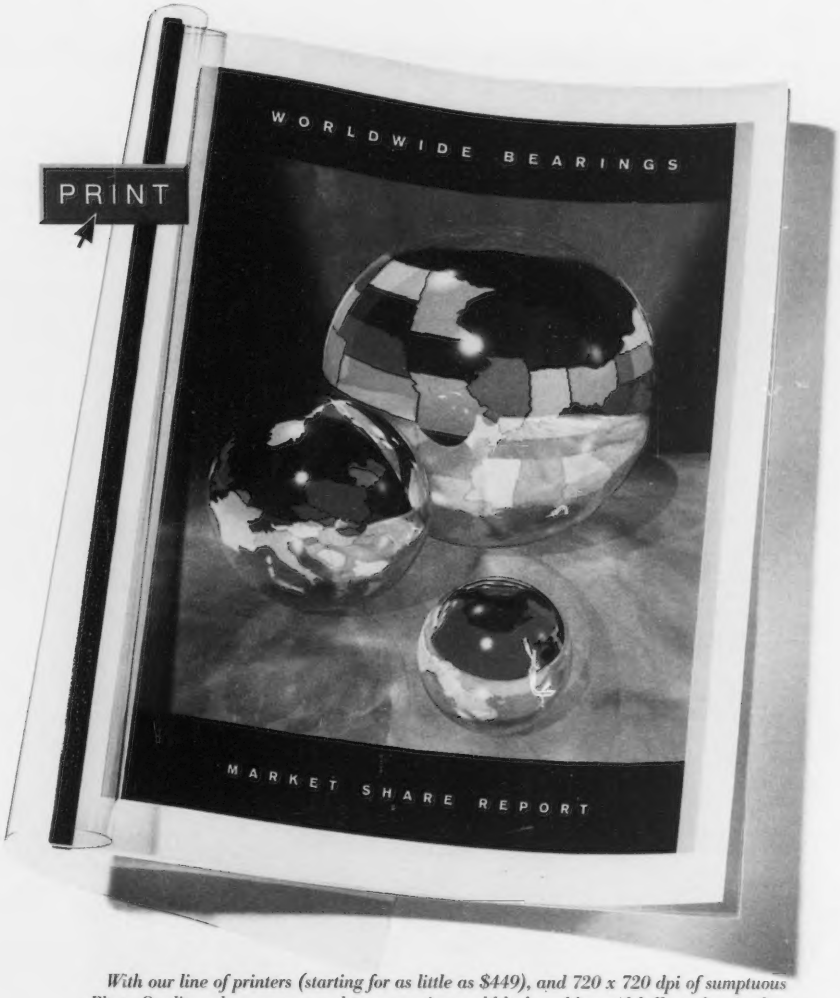

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Special Report: Electronic Commerce

Intranets vs. Notes

[What you do inside the firewall today can make a big difference for electronic commerce tomorrow]

BY KATHLEEN GOW

Are you nuts to be gearing up on Lotus Notes or similar groupware when time spent cultivating intranet expertise can be transferred directly outside the firewall? The answer is hardly black-and-white. Both approaches are right, according to consultants and information systems managers, and what makes sense today may not next year.

Fans of Lotus Development Corp.'s product say its security and replication features and ready development tools make Notes the best choice for populating the World Wide Web outside company walls and for supporting mission-critical applications underpinning electronic commerce. Intranet boosters argue that low cost and a standard platform make it a smarter bet.

Experienced hands say before choosing groupware or intranets — Web-based networks for internal use — it's wise to think about what kind of electronic commerce your company plans to conduct. Transaction processing? Information delivery? Data access? All three?

The real question, says Rob Rodin, CEO and president of Marshall Industries, Inc., isn't groupware vs. the intranet. Rather, it's how best to meet idiosyncratic customer needs. For the El Monte, Calif., distributor of industrial electronics, the answer includes Notes, intranets, electronic data interchange (EDI) and any other technology that allows customers to conduct electronic commerce 'round the clock.

Most companies probably will end up like Marshall — using whatever works.

The following four companies have made their decisions — for groupware, the intranet or both — based on company goals and urgency. Even so, industry analysts warn that choosing internal technology today that will best support external electronic commerce tomorrow is seldom clear-cut.

Millipore: Anxious loyalist

Kevin Danehy, manager of workgroup application development at Millipore Corp., says he's caught in the middle. Since 1992, the Bedford, Mass., maker of industrial purification technology has equipped 1,500 users worldwide with Notes.

"Now, all of a sudden, the World Wide Web starts to gain popularity," he says. "So the question becomes whether you do Notes or wait for the Web."

A self-proclaimed "Notes bigot," Danehy wonders about the long-term benefits of the commitment. Price cuts and the improved Web integration announced by Lotus in December, he says, make continued use of Notes "a no-brainer."

"We can build much better apps today with Notes and can very easily populate the Web and manage it through InterNotes," Danehy says.

For example, Millipore uses InterNotes to disseminate technical solutions from a Notes-based customer-call logging system using the company's external Web site (www.millipore.com).

Still, Danehy worries that further development of Notes hinges on whether IBM and its Lotus subsidiary can expand beyond the estimated 3.3 million Notes users. He says Netscape Communications Corp. "pretty much gave away [Web clients] at $17 or $20 a seat to 8 million users."

In contrast, Notes Desktop client software costs $69 for volume purchases, down from $155. Notes 4.0 now includes InterNotes Web Publisher, formerly $2,995, and supports Hypertext Transport Protocol (HTTP) server protocols.

Tom Pincince, a senior network strategy analyst at Forrester Research, Inc. in Cambridge, Mass., says, "I think Lotus is starting to wake up to the fact that this is truly a shift in the business model, when you see classic Notes customers beginning to question their solution."

Danehy says he eagerly awaits the promised midyear inclusion of Java — Sun Microsystems, Inc.'s programming language for building Web applications — into Notes' LotusScript language. Meanwhile, he says, Millipore will install its first intranet this quarter and begin experimenting with its use.

Whatever works

ALAN LEVENSON

▲ **Marshall's Rodin: Notes and intranet can coexist peacefully.**

Tyson Foods: Web cheaper, better

A year ago, Tyson Foods, Inc. decided to limit Notes use to 250 international salespeople and research and development staff. Today, the company's intranet includes three Purveyor Web servers from Process Software Corp. and about 200 Netscape clients.

"It seemed Web technology was a better fit [for information dissemination] because it was simpler, less expensive and easier to learn," says Steve Hankins, vice president of IS for the Springdale, Ark., food company.

Hankins says the experience gained by posting department materials on an intranet, such as job

Gow is a *Computerworld* senior editor, features.

listings posted by human resources personnel, will be helpful in using external Internets because the same protocols and skills are used. "The only difference between the two is that they are on opposite sides of the firewall," he notes.

Tyson is still deciding what kind of electronic commerce would be appropriate. Currently, most orders are taken via EDI from a sales force of broker networks. "Joe Smith isn't going to sit down at our Web page and order a chicken," Hankins says.

Ideally, he says, Tyson would like to let customers check the status of their orders via a Web page, as FedEx Corp. and other companies do. Tyson's Web page, now under development, should be up by April, the company says.

Ramp up now

How are you using, or planning to use, the Internet to interact with customers?

	1995	1997
Marketing info	57%	76%
Collaboration	20%	45%
Take orders	13%	48%
EDI	8%	39%
Other	18%	17%
Not at all	46%	1%

When will your company conduct transactions over the Internet?

1995	1996	1998	2000	Never	Don't know
13%	30%	25%	3%	2%	27%

When will 50% of your employees share information internally via the Internet?

1995	1996	1998	2000	Never	Don't know
5%	17%	30%	12%	7%	29%

Source: Forrester Research, Inc. Multiple responses allowed

Cushman & Wakefield: Web all the way

Neither was Notes the answer for New York-based Cushman & Wakefield, Inc., a commercial real estate company.

"You can do a lot of things [with Notes] if you're willing to sell your soul to it, but you don't do that lightly," says David Solomon, C&W's director of office technology. Besides lower per-user cost, he says, the Web offers easier updating than Notes.

The company's intranet runs on a Netscape server that allows users access to human resources policies, a national employee directory, sales proposals and co-broker listings. The IS department currently is mounting a proprietary database of property listings on the intranet for use by the firm's national sales force.

Like Tyson, C&W plans to leverage intranet knowledge outside the firewall to benefit customers. For example, Solomon says, the "SiteSolutions" property tracking database may be made available to corporate services clients after it's mounted on the company's intranet.

The big advantage of having the database on the external Web, Solomon says, is that it works with any customer's system. "We just say, 'Get a browser' and give them the address and a password." A redesigned version of C&W's external site (www.cushwake.com) is due this month.

▲ Cushman & Wakefield is considering offering its property listings, now being mounted on its intranet, to external customers. The firm's "SiteSolutions" pages are showcased on Netscape's Web site.

Solomon says he's not too concerned about moving information from an internal to an external Web site. Robin Palmer, national leader for electronic commerce at KPMG Peat Marwick in Palo Alto, Calif., agrees that Web security concerns are overblown. Security should enable, not inhibit, electronic commerce, Palmer says.

Firewalls and browser and server support of Web security protocols such as Secure Hypertext Transport Protocol and Secure Sockets Layer add one layer of protection. Secure fiber links add another layer. And products that support encrypted messaging and transactions over the Web will be available by midyear or so from VeriSign, Inc. in Redwood City, Calif., and other companies.

Marshall Industries: Best of both worlds

Marshall Industries has avoided an either/or approach in giving customers and suppliers 24-hour access to its products and services.

The $1.9 billion industrial electronics distributor has been taking customer orders via its Web site (www.marshall.com) since late 1994. And Lotus Notes also plays an important role, according to CEO Rodin.

Marshall probably will have 1,000 Lotus Notes clients and hundreds of intranet clients by the end of this quarter, Rodin says. Notes lets the company replicate from all its databases and provide the data to both internal and external Web users. Notes databases also store a wealth of marketing information, such as customer presentations and an opportunities database that captures customer feedback on products and services.

In addition, Notes allows management of the tools at the back end of the process, Rodin says — tools that let the company analyze customer needs and sales and delivery performance, for instance.

Michael Sullivan-Trainor, research director of electronic messaging and Internet commerce for International Data Corp. in Framingham, Mass., agrees that using both Notes and intranets makes sense for many companies. "Ultimately, a mixed approach is best," he says.

▶ *For a look at useful 'net sites and new products and services, see page 80.*

Advice

Should you skip Notes and go right to an intranet if your company is serious about electronic commerce? Computerworld asked several leading consultants and analysts.

Greg Cline, Business Research Group, Newton, Mass.
Cline says companies that need mission-critical security, collaboration or replication features should still consider Notes. "There will be some higher end features in Notes, at least for the next year or two," he says.

Tom Pincince, Forrester Research, Inc., Cambridge, Mass.
Building Notes applications on the road to electronic commerce is "absolutely the wrong way to go, because it locks you into a single vendor's proprietary technology and doesn't let you take advantage of public tools."

Michael Sullivan-Trainor, International Data Corp., Framingham, Mass.
"The implication for going with Notes means waiting for Lotus and IBM to evolve their approach." Over the next few months, he says, the Web tools market "will begin to see 2.0 versions that actually work." Among the up-and-coming Web tools is VisualWorks, from ParcPlace-Digitalk, Inc. in Sunnyvale, Calif. Sullivan-Trainor says the software will permit access to client/server applications and databases and let users build SmallTalk applications that can be translated quickly to the Web. But new products mean higher risk. "You have to ask yourself how much energy you want to put into developing new stuff."

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Special Report: Electronic Commerce

Pick of the Clicks

[These 'net sites can help set your electronic commerce direction]

INTRANET SITES

http://www.computerworld.com
Computerworld's on-line service features regular coverage of intranets.

http://www.process.com/news/intrawp.htp
In-depth report: "Intranet vs. Groupware: Key Differences" published by Process Software Corp., Framingham, Mass.

http://www.brill.com/intranet
Intranet Journal. News, analysis, resources.

http://www.xbg.com/Pubs/inet.html
New report on intranet/Internet from Zona Research, Inc.

http://www.advisor.com/ia.html
The Internet Advisor. Technical guide to the on-line universe.

http://www.tietotie.fi./pep/log_in_e.html
WWW Infobase. An information resource site for Web developers, HTML writers and the like.

NOTES SITES

http://www.lotus.com
Official Lotus site. Includes info on InterNotes, Lotusphere '96.

http://www-iwi.unisg.ch/delta/tips/index.html
Helpful hints for Notes users and developers.

NEWSGROUPS

comp.infosystems.www.authoring.html
comp.infosystems.www.authoring.misc
comp.infosystems.www.browsers.misc
comp.infosystems.www.misc

New and Noteworthy

[A rundown of recent electronic commerce products and services]

APPLICATIONS

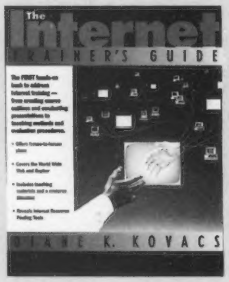
Electronic Commerce Gateway. *Internet software and services.* New offerings include firewalls, encryption, server and a clearinghouse among 12,500 trading partners. Sterling Software, Inc., Dallas. (214) 891-8600.

CA-OpenIngres/ICE. *Database management.* Offers Web-enabled access to corporate data. Companies can create corporate Web applications with embedded HTML access to server and host-based data. Computer Associates International, Inc., Islandia, N.Y. (516) 342-5224. http://www.cai.com

SalesNET. *Interactive sales and marketing.* Electronic catalog gives World Wide Web buyers customized view of products. Can be integrated with enterprise systems. Trilogy Development Group, Austin, Texas. (512) 794-5900.

Templar. *Internet-based electronic data interchange (EDI).* New deal between Premenos Corp. and UUNET Technologies, Inc. provides software, Internet access, and support from single vendor. New WebEDI also due out this quarter. Premenos, Concord, Calif. (510) 602-2000. http://www.premenos.com

Barcelona. *Language translation.* Software available for use on World Wide Web sites, Notes databases, E-mail. Converts English to French, German, Spanish, Italian and vice versa. Globalink, Inc., Fairfax, Va. (800) 255-5660. http://www.globalink.com



The Internet Trainer's Guide by Diane K. Kovacs, published by Van Nostrand Reinhold, $29.95. (800) 842-3636. **What, you train? If you or your staff suddenly is drafted to guide clueless newbies onto the 'net, this soup-to-nuts cookbook could help. Written by Kent State University's reference librarian, the 240-page book includes step-by-step lesson plans for teaching FTP, Gopher, WWW, Webcrawler and more.**

Step Search. *Graphical search and compare.* This interface between World Wide Web and product databases serves as on-line sales guide. Saqqara Systems, Inc., Sunnyvale, Calif. (408) 738-4858. http://www.saqqara.com

SECURITY

SmartGate. *Transaction-based network security.* Lets firms adapt legacy or new client/server systems for secure Internet operation. V-One Corp., Rockville, Md. (301) 838-8900.

Entrust. *Transactional data security.* Aimed at electronic forms, EDI, E-mail. Northern Telecom, Mississauga, Ontario. (214) 684-1000.

Eagle. *Firewall family.* New deal with Oracle Corp. provides secure database network traffic across Internet and corporate networks for companies using Oracle 7. Raptor Systems, Inc., Waltham, Mass. (617) 487-7700. http://www.raptor.com

Web Trader 2.0. *Sales processing software.* High-end Windows package permits secure Web-based commerce. SBT Accounting Systems, San Rafael, Calif. (415) 444-9900.

SERVICES

Unisys Corp. is joining forces with Five Paces Corp. of Atlanta to help banks re-engineer around Internet and World Wide Web. Unisys, Blue Bell, Pa. (215) 986-4011. http://www.unisys.com

Technology Solutions Co. announces electronic supply chain and electronic marketplace management services. Focus is on retail, distribution, financial services, managed health care, technology. Technology Solutions, Chicago. (312) 819-2250.

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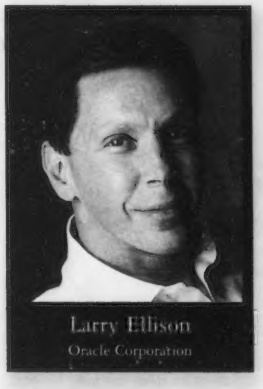

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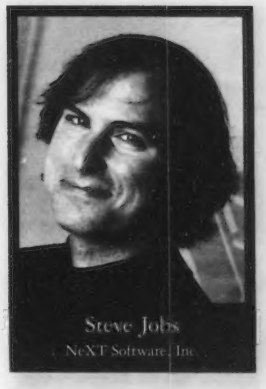

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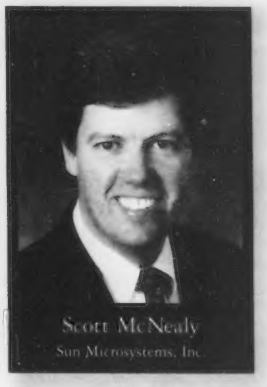

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In Depth

The future of interfaces includes wearable systems, Web-like features, 3-D and sound. Computing will get a lot more 'human'

ILLUSTRATION BY ANDREW FOLLMER

See me Feel me Touch me Heal me

By Kim S. Nash

Two men meet, shake hands, trade business cards, then move on. Nothing too intriguing about that scenario — except everything about how it happens.

The electrical circuitry of the men's bodies helps transmit digitized business card data to wristwatch displays when their hands touch. The men, scientists at MIT in Cambridge, Mass., also wear compact, portable hard drives in the form of slightly clunky sneakers.

And get this: The gizmos don't need batteries. They are powered by the electrical energy generated when the men move.

Welcome to the new look of the computer interface of the late 1990s and beyond.

Sitting at your desk in 10 years will not be the sensory dead end it can be now. You'll work with wearable computers, three-dimensional data, PCs that talk back and furniture whose infrared or microprocessor "eyes" monitor your moves. Business computing will be a lot more human.

"Most people have five senses, so it's crazy to turn

See me, *page 84*

Nash is a *Computerworld* senior editor for the Internet.

See me Feel me Touch me Heal me

CONTINUED FROM PAGE 83

them off when you go to work," notes Rick Villars, an analyst at International Data Corp. in Framingham, Mass.

Lively and lifelike is the future of computer interfaces. Here's a peek.

Wearable, transportable computers, *or Armani does hardware*

ESTIMATED ARRIVAL TIME: *2005, AT THE EARLIEST*

You've heard of information at your fingertips. Get ready for data at your toenails — and anywhere else clothes are worn.

That's the vision of MIT professor Neil Gershenfeld and undergraduate Chris Turner, who did the previously described business card demonstration using the latest in "sneaker net" computers.

Todd Chaffee, senior vice president of new technology at Visa International, Inc., flew from Foster City, Calif., to watch the demo. "That is some cool stuff," Chaffee gushes. "Right out of science fiction."

Indeed, science fiction is becoming science fact at a fast clip, with tiny computers and microprocessors starting to be implanted in everyday items such as clothing and furniture.

In fact, a fair share of the reported $30 million that Microsoft Corp. CEO Bill Gates is spending on his new house has gone toward building rooms that "know" their inhabitants. Temperature and light controls, for example, can detect who is where in the house (via special pins that Gates and friends will wear) and automatically set heaters and lamps to the tastes of particular people.

In the business world, Chaffee, who is in charge of evaluating way-out technologies for use in Visa's consumer products, sees credit, debit and automated teller machine (ATM) cards being made smarter by chips that can transmit money and financial data among stores, banks and consumers. The cards also will track people's buying habits and perhaps nonfinancial data such as medical histories.

Visa is running such test projects in Europe and Asia and expects to bring parts of the U.S. into the test bed this year, Chaffee says. If all goes well, the public could start carrying smart ATM cards in 1997, he adds.

Web goes mainstream, *or Webware everywhere*

ESTIMATED ARRIVAL TIME: *1996*

The World Wide Web lets people click on colored text or pictures to zip right to the information they want regardless of where it resides. There's no need to know file names or have the right database access privileges.

"The World Wide Web is spoiling people," says Mussa Khiar, a webmaster at Raychem Corp. in Menlo Park, Calif.

As more businesspeople get on the Web, they won't want to let go of their browser interface — full of hot links and smooth data access — when they launch traditional spreadsheets or word processors. Instead, that productivity software will be rewritten to react like Web browsers, such as Netscape Communication Corp.'s Navigator.

Separate PC applications will operate as a cohesive unit rather than force users to juggle several packages at once. Data will pass freely among programs. Users will click on a box in a spreadsheet grid and instantly be transported to, say, an internal discussion group or a related corporate database.

San Diego-based Intuit, Inc., for example, plans this quarter to ship the next version of its Quicken personal finance package integrated with Netscape Navigator. The browser will replace Quicken's traditional Windows interface for users who choose that route, though Windows traditionalists can override the Web interface.

Microsoft, too, has vowed to add Web-like features, such as hypertext, to the Microsoft Office suite of PC applications by midyear.

Intelligent agents, *or have your agent call my agent*

ESTIMATED ARRIVAL TIME: *NOW*

If the Web has taken corporate computing by storm, intelligent agents are electronic umbrellas to shield us from the precipitation.

Agents are chunks of software coded to perform tasks especially for you. Today, newspaper agents, for example, can fetch current events articles and video clips tailored to your tastes from the Internet or other electronic sources.

Agents built for the corporate realm have begun to surface, too. Agents, Inc., for example, is a Cambridge, Mass., company founded by a group of MIT scientists. The firm, led by professor Pattie Maes, plans to sell made-to-order agents for finding financial data, summarizing long documents and performing other business tasks. The agents will reside on desktop machines and be programmed to scan internal corporate networks, the Internet and other on-line sources.

These binary buddies could come in handy at Playboy Enterprises, Inc., says Eileen Kent, vice president of new media at the Chicago-based publisher. Playboy researchers spend a lot of time checking facts in the magazine's articles, Kent says. But agents easily could be commanded to retrieve specific information while fact-checkers work on other projects.

Playboy might use agents internally, but it is more likely to offer agents for a fee to visitors to its Web site, she says. "People could ask [an agent] to collect images of Miss December for the past 10 years or all our interviews with political figures," Kent explains.

3-D on the desktop, *or fly, be free*

ESTIMATED ARRIVAL TIME: *1998 to 2000*

Remember how, in the movie *Disclosure*, Michael Douglas and Demi Moore — no, not *that* part — stepped inside their PCs and walked, virtually, around their corporate data?

Little, translucent, holographic Demi opened doors and rifled through drawers of information. And when Michael logged in, he could see and hide from her.

In December, Microsoft demonstrated an interface that combines rudimentary virtual reality with some spiffy 3-D effects.

Flying through the towers and tunnels of a 3-D map of the U.S. that shows coffeehouse locales, Gates explained how virtual reality programming languages will make it possible to write routine PC applications that look and react like the physical world. Gone will be flat, silent desktop software.

Analyzing arcane financial data, for example, could be a lot easier. Accountants at a retail chain, say, could use 3-D maps with terrain constructed on the fly to reflect sales data that shows that Dallas stores report fatter sales of purple polyester sweaters than San Francisco outlets. No more tabulating figures or squinting over spreadsheets.

Unix rivals Silicon Graphics, Inc. (SGI) and Sun Microsystems, Inc. also want in on the 3-D business software market. Rather than build such applications themselves, however, the vendors plan to offer development tools designed to produce 3-D applications. They will integrate SGI's Virtual Reality Modeling Language (VRML) with Sun's Java Web programming language. Officials at SGI and Sun say they expect to ship melded Java/VRML tools sometime this year.

Sound technology, *or do you hear what I hear?*

ESTIMATED ARRIVAL TIME: *NOW TO 2000*

Two forms of audio technology are on the horizon.

First, sound emanating from PCs is beginning to appear. Cursors will soon do more than beep at you when you try to execute a wrong command.

A rudimentary form of audio feedback exists in Microsoft's Bob PC interface. Cartoon characters respond verbally to users with simple questions about saving files and checking for incoming mail.

Audio technology in the office, however, will be more sophisticated. A computer will suggest alternatives to the commands users issue.

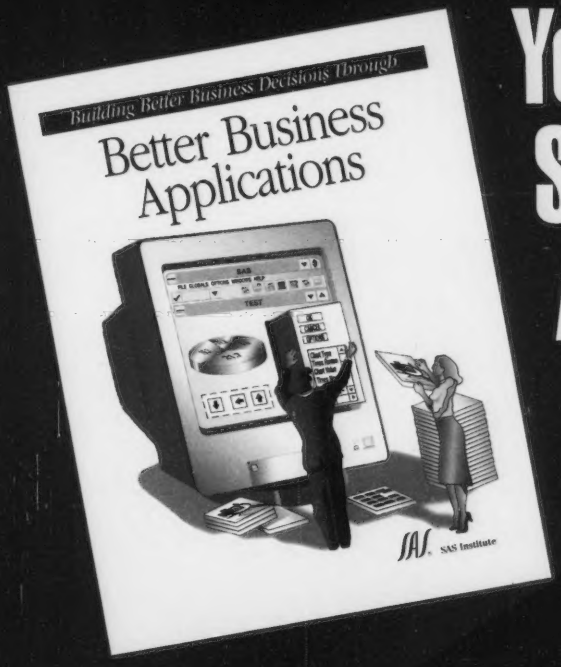
Voice recognition — which lets users tell their computers what to do — is also more available and affordable than it has been. Kurzweil Applied Intelligence, Inc. in Waltham, Mass., has offered computers that understand verbal commands for several years for $15,000 or more. PC clone vendor AST Research, Inc., however, recently introduced a much less expensive machine based on Intel Corp.'s Pentium chip. Priced at $1,734, AST's Bravo MS model comes with software that understands dozens of orders, such as "Spell check," "Print," "Switch to E-mail" and "Help."

IBM and other PC makers also are working on similar audio-smart systems.

Combining sound with sight in business computing is an insurance policy of sorts for busy executives, Villars says. What the eye may pass over, the ear will pick up, and vice versa, he explains. ■

Computer interface on-line resources

- Telecommunications firm **AMERITECH** offers its assessment of where lapel phones, handheld interactive TVs and other futuristic products stand at **http://www.ameritech.com/news/ait_adv/gadgets.html.**
- Wouldn't it be nice to consolidate your voice mail and E-mail? **AT&T BELL LABORATORIES** is working on a text-to-speech synthesizer that may enable you to do just that. While the product isn't likely to be available until late next year, you can try a version at **http://www.research.att.com**, where you'll find a link to "text-to-speech demo." Your browser must be configured to play audio files. Progressive Networks, Inc.'s Real Audio player can be downloaded from the AT&T site.
- **IBM'S ALMADEN RESEARCH CENTER** hosts an intriguing computer science show-and-tell program at **http://www-i.almaden.ibm.com/cs/showtell/Home.html.**
- **THINGS THAT THINK** is a new research project recently launched by MIT's Media Laboratory. Check out **http://ttt.www.mediamit.edu/.**
- **XEROX CORP.'S PALO ALTO RESEARCH CENTER**, where the idea for the graphical user interface was born, is at **http://www.xerox.com/PARC/default.html.**
- A general collection of human/computer interface resources resides at **http://www.ida.liu.se/labs/aslab/groups/um/hci/**. Links to human factors research sites are at **http://oliqs.arc.nsa.gov/jump/human-factors.html.**
- Animated discussion of what is and isn't the right way to design a computer often dominates the **USENET** newsgroup **comp.human-factors.**



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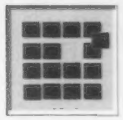

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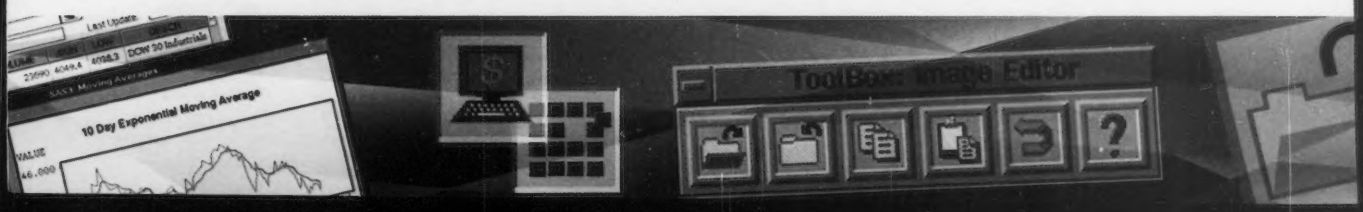

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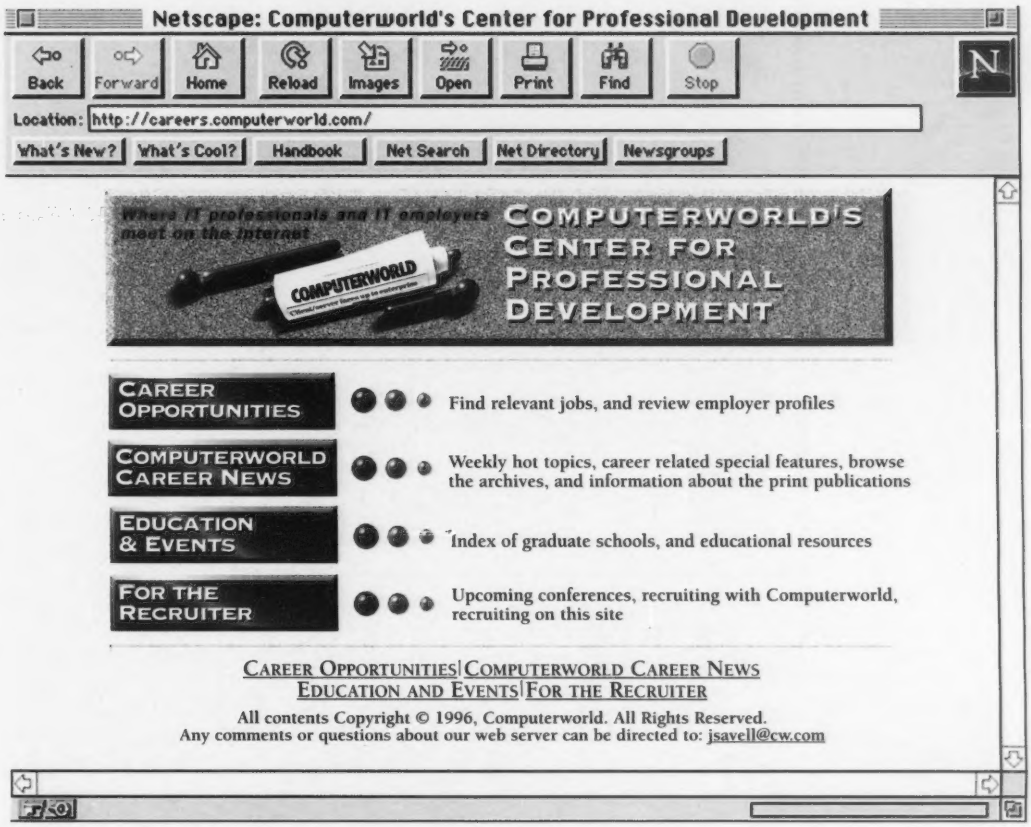

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Computer Careers

Living on shaky ground

Constant fear of job insecurity is forcing IS professionals to compete with the best but prepare for the worst

By David Weldon

Information systems professionals pondering any job offer today may feel as if they're courting a black widow spider. Sure, they may be lured by enticing offers. But then reality strikes: New employees can face long hours, high stress, low self-esteem and no job security. Instead of a thrilling relationship, they may soon fear being eaten alive — the victim of downsizing, rightsizing or outsourcing.

Stress and insecurity are now part of the job description for many IS professionals. But those who have experienced large-scale layoffs or corporate mergers and those who have helped the victims offer advice on how to keep your sanity, keep your job or, at least, best position yourself for the next one if you are downsized.

Steven Barrett
Director of networks and telecommunications
Lotus Development Corp.
Cambridge, Mass.

Steven Barrett is fast becoming an expert on the impact downsizing, mergers and acquisitions have on workers.

In his last job as a manager of systems and operations at Digital Equipment Corp., he watched a corporate reorganization eliminate nearly 50% of his department's staff — some through attrition, most through layoffs.

Then last fall, he signed on at Lotus in his current position. Five days later, the company was acquired by IBM. The lesson was clear.

"I came to realize that a lifetime job in IS doesn't exist," Barrett says. "That's not to say you shouldn't trust your company, but you must realize that things will change."

The best way to cope with this reality, Barrett says, is to have confidence in your value to the company, but also make sure that confidence is well-placed. IS professionals need to keep their technology skills sharp and broaden their business and communications skills. Don't just take advantage of on-the-job training, he advises. Do your own training at home as well.

"You need to focus on your customer, on their needs and on your skills," Barrett says. "You have to focus on the fact that IS really is a business now, not just [on] what new technology is really cool, but what business processes you are improving."

Allan Grossman
Senior partner
A. Davis Grant & Co.
Iselin, N.J.

When AT&T Corp. in Basking Ridge, N.J., announced on Jan. 2 that it would be eliminating 40,000 positions nationwide over the next three years, no shock waves rippled through the local job market.

"So far, other than the gee-whiz factor, there has not been much reaction to the news," says Allan Grossman, senior partner at an IS search firm in nearby Iselin. Surprising? Grossman doesn't think so.

"Employees have lost their naivete. It's understood this is the way of the world now," he says.

Grossman has considerable experience helping victims of downsizing and outsourcing pick up the pieces of their careers. And he knows which IS employees best handle working with the fear and uncertainty of job loss.

"The younger and the older employees are the ones most concerned. Younger employees are less sure how to handle this; they're more nervous," Grossman says. "The ones in between have seen this enough now to have done networking over the years."

But "the older ones have the most to lose," Grossman says of many IS employees in their mid-40s and older. "They may not be marketable elsewhere, or they may not be able to relocate."

To best protect yourself against job loss, "do the best you can and make sure others know what you're doing. Get visibility, get training, take advantage of new and emerging technologies," Grossman says. And younger employees should take advantage of tuition reimbursement programs to finish their degrees.

Despite stress and turmoil, Grossman says it is important for IS employees to come to work in a good mood regardless.

"Be upbeat and enthusiastic at all times. Personalities can be very important when the decisions are made about who gets cut," he says.

Richard Nordtvedt
Senior manager of IS development
FedEx Corp.
Memphis

The key to being an IS survivor, says Rick Nordtvedt, is to arm yourself heavily: Take total responsibility for your career development, know the business and learn to adapt quickly.

It is critical for employees to seize every possible opportunity for training at their companies, Nordtvedt says. But company-sponsored training isn't enough. "The most successful are those that take advantage of training but take it even further," he says. This can include outside professional courses, software training packages, association and user groups and continuing education classes.

Nordtvedt says employees should read widely. "Have a heavy dose of technology reading, but broaden what you read — expose yourself to new ideas. Continue to learn something new," he says. "It is important that people look at their own career development as exactly that."

John Danielli
President
The Computer Merchant
Norwell, Mass.

Despite the stress and insecurity, there is good news in all of this.

"Today your job is merely an assignment," says John Danielli, president of an IS placement firm. The benefit is greater opportunity to do more challenging and interesting work. "It's a traumatic time, but it's an exciting one. They have many more options," he says.

Despite downsizing and the fear of it, Danielli says companies are hiring more technologists. But they're hiring more contractors and consultants. "They're hiring to do specific projects," he says.

This puts the burden on employees to keep their training up to par, to invest in their career development and give themselves the most flexible skills base possible. This will let IS professionals move more easily from assignment to assignment and from job to job. ■

Weldon is *Computerworld*'s senior editor, Careers.

Reposition yourself

Attitude and assertiveness can be key to re-employment.

- **Be flexible in what you will accept.**
- **Don't rule out relocation.**
- **Don't rule out smaller titles, salary and staff levels.**
- **Network with peers, former employers and co-workers.**
- **Ask those you speak with for other referrals.**
- **Have an agenda when you make calls.**
- **Introduce yourself to professional search firms.**
- **Send multiple resumes to likely hiring prospects.**

Protect yourself

IS professionals can take steps to increase job security.

- **Do the best you can at your job.**
- **Show enthusiasm with work, employees and managers.**
- **Identify users' needs that you can satisfy.**
- **Make sure others recognize your accomplishments.**
- **Read trade and technical publications to identify trends.**
- **Target your skills development to match industry needs.**
- **Take advantage of company training.**
- **Use tuition reimbursement programs to finish degrees.**
- **Use software packages for at-home training.**
- **Network at associations, both IS and industry.**

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COMPUTERWORLD

Finding the multifaceted trainer

When it comes to choosing an outside technology trainer, flexibility is the key requirement

By Tom Duffy

PowerBuilder, Excel, C++, Windows 95. Computer applications and upgrades seem to be proliferating like rabbits. Information systems' in-house training department can't keep pace with the desires of employees to acquire new skills or hone old ones. It's time to bring in an outside training company. The question is: Where do you begin?

Most companies with significant training budgets will take the time to evaluate prospective training firms. Issues to study closely, besides cost, include how well the company monitors and evaluates its trainers, how well the trainers know their material and the quality of course content, including any computer-based training materials such as CD-ROMs.

"One of the better vendors advertised that after they came in to do PowerPoint, we could call them for the first year for any technical support on PowerPoint or Windows. Since it costs money to get that from Microsoft, that's the kind of thing we would take advantage of."

— Joseph Danielewicz, data administrator at Motorola, Inc., Tempe, Ariz.

Personality a plus

But the personality of a trainer is nearly as critical as his knowledge, says Lucia Eversley, manager of sales and marketing systems at Gillette Co.'s North America Group in Boston.

"If they're dry or they don't have the personality, my people get turned right off," Eversley says. "If you have [people] there all day or a few days, [the trainer] need[s] to keep their interest. If [he] can't do that, we've wasted our money."

TRAITS OF A GOOD TRAINER

Outside trainers should be evaluated on the following:

- Knowledge of the material.
- Experience in a business environment, not just as a teacher.
- Understanding the specific business purpose for which the training will be used.
- Ability to use industry-specific, rather than generic, examples.
- Ability to keep students' interest.
- Flexibility, or ability to adjust to different classes and different learning styles.
- Availability of instructor before and after class and during breaks.

TRAINING RESOURCES

The following offer help in locating training organizations or information:

Information Technology Training Association, Austin, Texas, (512) 502-9300. A national group that comprises computer training vendors.

Masie Center, Saratoga Springs, N.Y., (800) 986-2743. The Masie Center's Web site at www.masie.com has a wealth of information about training, including articles written by President Elliott Masie on subjects such as computer-based training and questions to ask prospective vendors. The site also offers links to more than 100 other training-related sites.

There has been a proliferation of computer-based training methods in recent years. Most training companies now offer a mix of instructor-led and computer-based training, depending on the level of the course. Training companies also should be willing to tailor their classes for the needs of different departments and, in some cases, different individuals.

Successful training requires a thorough and accurate assessment of the needs and learning styles of employees, according to Ellen Julian, a senior analyst at International Data Corp. in Framingham, Mass. So it is critical to choose a firm noted for effective needs assessment.

"You have to know what your employees want," Julian says. "If you know this is a group of people who won't do self-paced [computer-based] training, then you're going to have to supply a live trainer, otherwise it's not going to get done. You have to have them assessed and surveyed. It's not intuitive; it's research."

Most large companies also offer training in a wide variety of applications. But some companies are better than others at training users already familiar with an application to use it for a particular business purpose.

"There are a lot of people out there, for instance, [who are] training people to use Lotus Notes," says Elliott Masie, president of the Masie Center, a technology think tank in Saratoga Springs, N.Y. "There's another breed that knows how to teach people to use Notes to do targeted selling or competitive analysis."

Keep the training coming

What a company provides after formal training ends is often as important as the initial course work. Many companies conduct a post-training assessment to determine the effectiveness of the course. Companies should also offer follow-up training for individuals who found the initial training ineffective.

"One of the better vendors advertised that after they came in to do PowerPoint, we could call them for the first year for any technical support on PowerPoint or Windows," says Joseph Danielewicz, data administrator at Motorola, Inc. in Tempe, Ariz. "Since it costs money to get that from Microsoft, that's the kind of thing we would take advantage of."

Avoid complacency rut

But beware of falling into the routine of constantly returning to the same training firm without studying their competitors. The result can be complacency, says Hobart Pillsbury, manager of planning and controls for IS systems at Memphis-based International Paper Co.

"We constantly review what we are doing and who we are working with," Pillsbury says. "We don't want to miss something if there is a better approach or a new technology out there."

As for which companies to ultimately choose, Pillsbury and others say individual references from companies with similar needs are critical.

Masie suggests asking a vendor for a reference that begins with a certain letter, such as "S," to avoid getting a meaningless, sanitized reference. Alternatively, references can come from the person sitting next to you in church or at a user conference for an application that requires training.

"Everyone around here knows folks over at FedEx, and they routinely will ask them what kind of training programs they use," Pillsbury says. "If you trust an individual and have confidence in their judgment, it's like a first-person referral on a job candidate. It's another piece of information that has value." ■

Duffy is a freelance writer in Somerville, Mass.

Briefs

Employees dissatisfied with corporate training

When it comes to offering quality training programs and avenues for career advancement, most companies earn low marks from employees.

That is the finding of a recent survey of 300,000 employees at approximately 250 companies polled in the Hay Group's annual Employee Attitude Survey. The national survey asked employees to rank their levels of satisfaction with their work, salary, training, their companies and their managers.

Employees reported high levels of personal job satisfaction but low levels of satisfaction with their managers. Only half of the employees surveyed said their managers did a good job. Less then half were happy with corporate job training programs. This problem could grow as managers must do more on-line in multimedia training. Approximately half also cited complaints about pay, resolution of problems and tolerance of goof-offs.

Source: Hay Group, a management consulting firm in Philadelphia

Few professionals insure home computer equipment

With income tax season in full swing, many IS professionals are taking stock of their home computer equipment for business expense write-offs and depreciation. But few have probably bothered to list the same items with their home insurance agent. The result could be disastrous.

According to insurance industry experts, many professionals incorrectly assume that their homeowners insurance policy covers their home office equipment, including PCs, printers, modems, fax machines and software. It rarely does, and homeowners often discover this after a claim is filed for theft or damage.

"Generally, home policies have small print that excludes business losses," says Robert J. Levine, chairman and chief executive of the Independent Business Alliance, an association for home-based businesses.

Insurance policies that cover claims for business equipment typically cover up to $2,500. But for approximately $60, homeowners can add riders to their policies to increase coverage to $5,000 worth of business equipment and $2,500 in inventory.

Source: The New York Times

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Software Engineer: Will use Visual Basic, Visual C++, and MS-Access on a Windows network environment to design and develop Graphic User Interface software for various business applications. Will use SQL to develop various relational databases in MS-Access for installation on various network platforms including Windows NT and Novell. Requires Master's degree in Computer Science. Also requires two years experience in the job to be performed or in lieu of two years direct experience, will accept two years as a Software Engineer if at least six months is in the job to be performed with the remaining experience including design and development of a relational database management system using SQL and programming in C in a network environment. Hours: 9:00 a.m.- 5:00 p.m. 40 hours per week at $50,350 per year salary. Must have proof of legal authority to work permanently in the U.S. Please send resume to: Kathe Foxen, HR Administrator, Melson Technologies, Inc., 707 Skokie Boulevard, Northbrook, Illinois 60062. No Calls.

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- Experience with mainframe programming helpful

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- Systems development lifecycle skills
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Regional Scope: Overseas

On top of the world

TOP IS MANAGERS CAN FIND NEW CAREER AND CULTURAL OPPORTUNITIES WITH OVERSEAS ASSIGNMENTS. *BUT LANDING ONE IS NO HOLIDAY.*

By Lynn Haber

Top-notch information systems managers literally can have the world at their feet. International career opportunities for mid- to senior-level managers can be found as nearby as London or as far away as China.

The benefit of having an overseas assignment under your belt is that employers recognize international experience. IS managers who return from a successful employment stint abroad can demand a premium for their experience, recruiters say.

But as exciting and enriching as overseas IS assignments may seem, they are demanding and clearly not for everyone.

"Don't underestimate an international assignment; it's still work, not a holiday," says Charles Polachi, managing partner at Fenwick Partners, a Lexington, Mass.-based member of International Technology Partners, a global executive IS search firm.

Polachi says because of time and cultural differences, expatriates tend to work harder overseas than in the U.S. And success is rated by the return home to the U.S. Lining up a reentry assignment is critical to a smooth transition home.

"Many individuals return home from overseas a different person. They want to do more and expect more out of their careers. Many end up disappointed," Polachi says. In fact, more than 50% of professionals with overseas assignments return home and are unemployed for as long as 12 months after their return, he says.

CONTRACTS FOR *OVERSEAS ASSIGNMENTS* RANGE FROM TWO TO FIVE YEARS, WITH MOST PEOPLE USING THE FIRST COUPLE OF YEARS TO ACCLIMATE TO LIVING IN A FOREIGN CULTURE. "IT'S A LIFESTYLE THAT YOU HAVE TO UNDERSTAND AND ACCEPT. IT CAN'T BE FORCED OR YOU'LL FAIL." – Jean-Louis Alpeyrie, *director partner at Heidrick & Struggles in New York*

If you're determined to test the international waters, overseas opportunity for high-level IS executives is strongest for those with a solid background in network applications, client/server technology and the Internet.

Europe holds the most promise for high-level IS professionals, international recruiters say. But rather than link IS positions to location, Mina Gouran, managing partner for international technology at Heidrick & Struggles in London, links job opportunities to the business.

Gouran says there are several technical application areas where U.S.-based senior IS managers are seen by multinational corporations to have taken the lead and have found success. These include telemarketing and on-line services.

That said, the U.K., Brussels and Amsterdam tend to be the home base of many multinational organizations. Industries such as banking/financial, consumer goods and retail are currently the strongest employment markets for IS professionals.

"These are the pioneering industries on the forefront of technology," Gouran says.

Nancy Garrison-Jenn, Paris-based author and consultant at *The Economist*, provides additional global perspective on IS career opportunities: In Europe, go north rather than south — Scandinavian firms are looking to expand their businesses — and go East to countries in Asia — Singapore and China. Germany, she says, also is becoming a gateway to eastern Europe and eastern Germany.

Today, there is a significant amount of international IS opportunity in marketing, sales and general management, according to Jean-Louis Alpeyrie, director partner at Heidrick & Struggles in New York. This is especially true in the Asian Pacific countries such as Hong Kong, China, Indonesia, Singapore and India.

"Demand is high because there isn't enough of an existing skill base in the area," Alpeyrie says.

The trick to landing an overseas assignment is preparation, knowing where the jobs are and having the right skills. To begin with, multinational corporations participate in a global economy and require that high-level IS professionals cultivate a global skill set.

"Beyond possessing the raw technical skills and the ability to do the job, the IS [manager] has to be able to take into account social and cultural differences as well as understand how the economies of the world work together," Polachi says.

Experience and project management skills — the ability to execute and deliver on an assignment — also are critical to any IS manager's portfolio.

"You have to establish a track record and have done one or two things of interest. Results are what employers are looking for," Gouran says. Then, when the telephone rings, listen.

As for compensation, expect a comparable salary with some room for negotiation. Don't expect to get rich, but expect higher salaries in hardship areas such as the Middle East or parts of South America, including Columbia.

But the real benefit of overseas experience is that it differentiates you from your peers who don't have the experience.

"If the [information technology] professional survives the experience intact, he or she can then demand a premium because employers recognize the value of global experience," Polachi says. It could be your arrow to the top. ■

Haber is a freelance writer in Norwell, Mass.

U.S. IS executives who are seeking overseas assignments should look toward European countries such as France, the Netherlands and Great Britain for job opportunities

Paving the way

IS MANAGERS CAN TAKE STEPS TO ACHIEVE A SUCCESSFUL OVERSEAS CAREER

- *Decide early* in your career where your interests lie.
- *Work* for a multinational firm in the U.S.
- *Look within* that firm for international opportunity.
- *Get involved* with projects with international implications.
- *Participate* in international industry forums.
- *Network* with people with international experience.
- *Study* a foreign language.
- *Study* the various economies of the world.
- *Immerse* yourself in a foreign culture.

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International guides

RESOURCES FOR CAREER OPPORTUNITIES AND INFORMATION

International recruitment firms:

Fenwick Partners, Lexington, Mass. (617) 862-3370

Heidrick & Struggles, New York (212) 867-9876

Korn/Ferry International, New York (212) 687-1834

Spencer Stuart, New York (212) 336-0200

Russell Reynolds Associates, New York (212) 351-2000

The Economist Intelligence Unit (New York [212] 554-0627). Assesses top international firms and publishes executive search reports such as Nancy Garrison-Jenn's recent book *Executive Search in Europe*.

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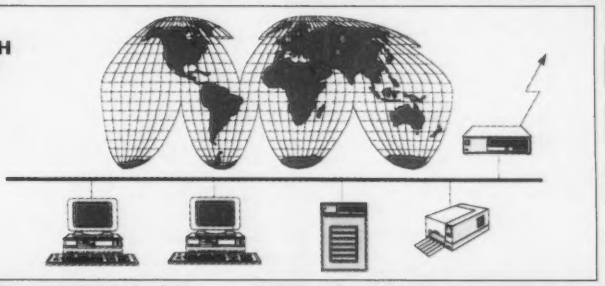

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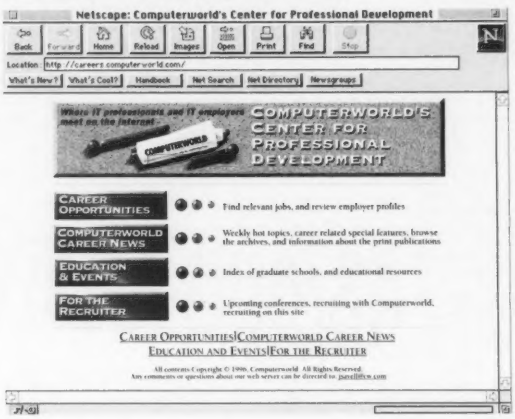

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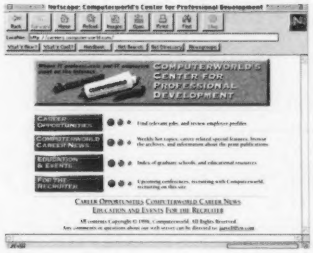

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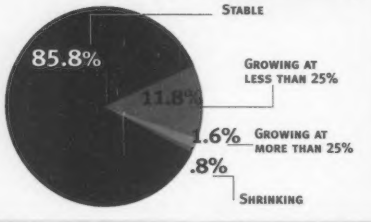

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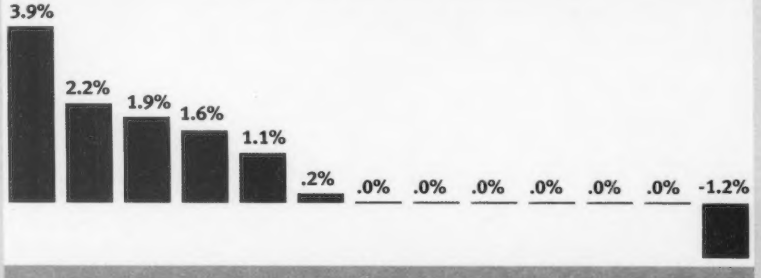

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CONFERENCE watch

UniForum '96

Conference attendees want to see open systems and Internet offerings, share information with their peers

By Lynn Haber

Unix, Windows NT and the Internet are among the hot topics that more than 30,000 attendees will chase at UniForum '96 next week at San Francisco's Moscone Center.

The agenda includes more than 100 sessions dedicated to Unix and open systems. Several hundred exhibitors will demonstrate heterogeneous hardware and software systems, transaction processing and World Wide Web server and security products. An added attraction is Enterprise Computing Solutions '96. UniForum is sponsored by Softbank Comdex, Inc. in Needham, Mass.

Here are the plans of some first-time and repeat UniForum attendees:

JAMES BLAKE
Director, systems support
The Longaberger Co., Dresden, Ohio

"Not having been to a UniForum conference in a couple of years, I hope to catch up on the latest Unix technology, particularly the Internet and the World Wide Web. On the product side, I'm interested in finding some performance tools and capacity-planning tools, which have traditionally been weak in the Unix world. I'd like to trade up our homegrown tools for new ones that are more robust and suitable for a growing enterprise."

MICHAEL HARRINGTON
Systems administrator
Beth Israel Hospital, Boston

"This is my third UniForum, and I go as a coordinator of the 'Birds of a Feather' sessions as well as an attendee. I'll be attending a few of these informal sessions: in particular, one on the World Wide Web and another on melding Windows — both Win 95 and NT — with Unix. I see UniForum as more of an opportunity to share information than to find products. I find it hard to believe everything the vendor salespeople show and tell me on a floor. What I'll do with any information I gather at the conference is share it with my colleagues via informal talks and get-togethers."

SUE MERRITT
Systems engineer
Ford Motor Co., Dearborn, Mich.

"I'm part of a research area at Ford, and people here are very interested in looking into a distributed file system under the Distributed Computing Environment. So, for starters, I'm going to attend a one-day UniForum tutorial on distributed computing. I expect I'll look for shorter seminars as well. But more importantly, I'll be looking for debuggers and linkers, products that currently represent a gap in my tool kit. I want to find tools that are consistent across platforms and that we can use without having to sign our lives away. After the conference, I hope to be able to invite several software companies to demonstrate their products to our group."

WENDY STRESAU
Manager, Unix system development
Compaq Computer Corp., Richardson, Texas

"We're currently integrating Unix and Windows NT for the design engineers. So I'll be attending a few related seminars. I'll also be attending a seminar on security.

"I'm also interested in help desk solutions for Unix and NT, and remote computing tools for network management and systems administration."

STEVE KOEBENSKY
Network specialist
Motorola, Inc., Phoenix

"This is my second UniForum, and I hope to walk away with a lot of information. My main target will be on sessions related to networking and Unix. I'm very interested in ISDN [Integrated Services Digital Network] and high-speed networking technologies. We currently have a few people that work from home, but the company is interested in pursuing a broader telecommuting strategy for about 100 individuals, and ISDN will play a big role."

RICHARD SPENCER
Staff engineer, software development
Biomerieux Vitek, Inc., St. Louis

"I'm a project leader for all software development under Unix and for a new project under Windows NT, so I'm most interested in attending all seminar sessions having to do with NT and NT integration with Unix. On the floor, I'll be looking for development tools rather than applications — in particular, fourth-generation languages, anything similar to [Powersoft Corp.'s] PowerBuilder and tools to help graphically design a database."

PETER DINSMORE
Principal computer engineer
Trusted Information Systems, Inc., Glenwood, Md.

"I'm going to UniForum for two specific reasons: one, my company's specialty is security, and we'll be presenting a track on security; and [two], as a development manager, I find UniForum to be a consistently good source of information on what's new, what's available and who's selling what for tools in the development environment. I'm usually able to collect information for the year on compilers, debuggers, configuration management tools and bugging tracking tools." ■

Haber is a freelance writer in Norwell, Mass.

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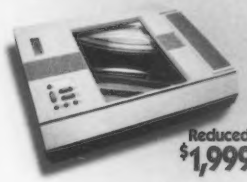

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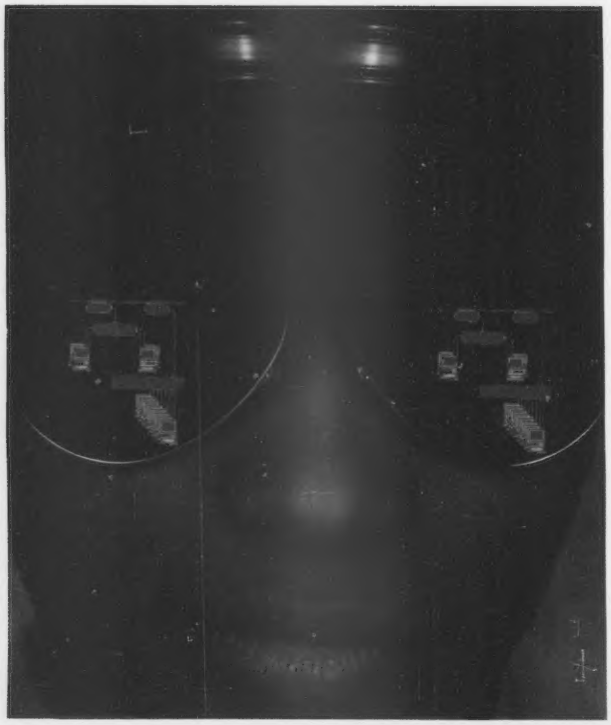

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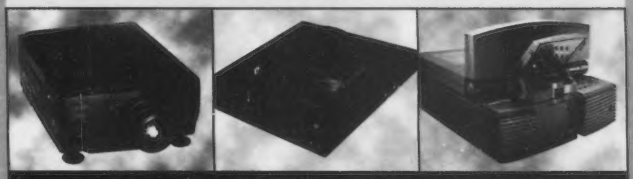

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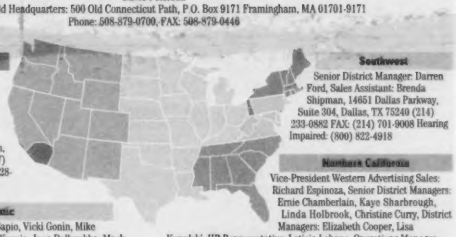

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Gainers

Percent

Retix	67.7
Applix Inc.	48.9
Emulex Corp.	30.4
DSC Communications	23.8
Arbor Software	22.2
Cascade Communications	21.0
Network Equipment Tech.	20.6
Symantec Corp.	20.5

Dollar

Cascade Communications	15.50
Applix Inc.	11.25
Arbor Software	7.50
Computer Associates	7.00
Intuit Inc.	6.75
DSC Communications	6.31
Cabletron Systems	5.88
LSI Logic Corp.	5.50

Losers

Percent

Peak Technology Group	-36.9
Hyperion Software Corp.	-22.3
Netcom On-Line	-19.1
Intersolv Inc.	-18.4
Iomega Corp. (H)	-16.5
Radius Inc. (L)	-16.1
Network Equipment Tech.	-16.0
Intelligent Electronics (L)	-13.1

Dollar

Peak Technology Group	-11.25
Netscape Comm. Corp.	-10.44
Ulinet Tech.	-7.50
Netcom On-Line	-7.06
Cambridge Tech. Partners	-5.00
Hyperion Software Corp.	-4.13
Spyglass Inc.	-3.50
Adobe Systems Inc.	-3.38

DEC turns another page

Like the textile mills still rising from the ashes in nearby Methuen, Mass., **Digital Equipment Corp. (DEC)** in Maynard, Mass., appears to have performed a phoenix-like resurrection (see chart).

"Digital's rebirth has come in phases," said Laura Conigliaro, an analyst at Prudential Securities Research in New York. Digital came to the conclusion that it had to make some radical changes, Conigliaro said. "It is important to remember that they took huge write-offs along the way to get where they are," she said.

Analysts concurred with Digital officials who attributed the most recent good numbers to steady sales increases in high-end, 64-bit AlphaServer systems. Gary Helmig at SoundView Financial Group in Stamford, Conn., said the sales increases have been driven by "solid technical performance." Digital's 8400 server received top scores in several recent benchmark comparison tests, which has helped the company attract attention from users who are looking for performance, Helmig said. He said Digital has turned this attention into sales.

Conigliaro also deemed Digital's withdrawal last week from the consumer PC market "extremely wise. They were essentially a nonfactor in that sector, with no presence and no name," she explained, "and they weren't doing anything unusual." Sony Corp.'s recent arrival in the market may have hastened Digital's decision to flee the competitive consumer segment, she said. So is there still time for investors to cash in on Digital's rebirth? Conigliaro says yes, although investors probably wish they had invested six months ago. The company's growth "still has legs to it," she said. — *Stewart Deck*

Digital awakening

Exch	52-Week Range			Feb. 5 3 PM	Wk Net Change	Wk Pct Change
Communications and Network Services						**UP 3.80%**
COMS	53.63	22.25	3 COM Corp.	45.63	1.25	2.8
AIT	60.88	40.75	AMERITECH Corp.	60.38	0.75	1.3
APTS	15.00	2.75	Apertus Tech.	3.75	-0.13	-3.2
T	68.88	47.88	ATT	65.00	0.25	0.4
ASND	45.50	6.13	Ascend Communications	42.25	1.25	3.0
BNYN	18.63	6.00	Banyan Systems Inc.	8.38	0.13	1.5
BNET	50.00	18.88	Bay Networks Inc.	42.38	2.38	5.9
BELL	71.13	50.75	Bell Atlantic Corp.	69.13	1.38	2.0
BLS	45.88	28.25	Bellsouth Corp.	42.38	1.25	3.0
BBN	48.75	15.63	BOL*, Beranek and Newman	29.75	-1.75	-5.6
BRKT	34.00	10.50	Brooktrout Technology	32.00	1.50	4.9
CS	87.75	37.38	Cabletron Systems	79.25	5.88	8.0
CSCC	92.50	29.25	Cascade Communications	89.25	15.50	21.0
CGRM	25.13	12.75	Centigram Communications	15.94	-0.56	-3.4
CSCO	89.38	32.50	Cisco Systems Inc.	85.38	4.25	5.2
CLIK	11.38	6.00	Compression Labs Inc.	7.38	0.63	9.3
CMNT	12.75	4.00	Computer Network Tech.	4.56	-0.31	-6.4
XCOM	14.50	8.75	CrossComm	10.75	0.38	3.6
DIGI	64.00	21.88	DSC Communications	32.88	6.31	23.8
FORE	67.75	25.50	FORE Systems Inc.	57.63	3.13	5.7
GDC	26.50	9.25	General Datacomm Inds.	13.13	0.38	2.9
GSX	42.50	28.00	General Signal Networks	35.00	1.25	3.7
GTE	46.50	31.88	GTE Corp.	46.00	0.38	0.8
MCIC	30.13	18.13	MCI Communications Corp. (H)	28.25	0.75	2.7
MICM	12.50	5.50	MICOM Communications Corp.	7.88	-0.75	-8.7
MNPI	28.00	9.00	Microcom Inc.	24.75	0.25	1.0
NETM	34.00	10.00	NetManage Inc.	12.75	-0.31	-2.4
NTRX	9.88	3.63	Netrix Corp.	5.00	-0.63	-11.1
NCDI	12.00	4.00	Network Computing Devices	6.00	-0.88	-12.7
NWK	42.00	19.75	Network Equipment Tech.	28.50	4.88	20.6
NETG	46.50	22.75	Network General	40.75	5.13	14.4
NWTH	42.19	7.38	Net Worth Inc.	42.13	0.00	0.0
NN	53.25	25.00	Newbridge Networks Corp. (H)	52.00	2.50	5.1
NT	45.88	31.50	Northern Telecom Ltd.	45.88	0.88	1.9
NOVL	23.25	12.00	Novell Inc. (L)	13.31	0.94	7.6
NYN	54.00	38.00	Nynex Corp.	53.75	1.75	3.4
OCTL	42.63	18.00	Octel Communications Corp.	34.25	-2.50	-6.8
ODSI	43.25	12.75	Optical Data Systems Inc.	19.38	0.13	0.6
PCTL	43.88	11.50	Picturetel Corp.	39.38	-0.63	-1.6
PTON	10.75	5.50	Proteon Inc.	6.44	0.19	3.0
RACO	7.88	3.13	Racotek Inc.	4.88	-0.38	-7.1
RETX	5.50	1.81	Retix	3.25	1.31	67.7
SFA	24.88	11.38	Scientific Atlanta Inc.	17.25	1.75	11.3
SHVA	77.50	27.00	Shiva Corp.	71.00	2.75	4.0
SBC	60.25	39.63	Southwestern Bell Corp.	57.50	1.25	2.2
FON	43.63	27.75	Sprint Corp. (H)	42.75	0.38	0.9
SMSC	30.50	12.50	Standard Microsystems Corp.	17.50	0.63	3.7
STRM	82.00	32.00	Stratacom Inc.	79.50	4.25	5.6
TBIT	8.63	2.38	Telebit Corp.	4.63	-0.38	-7.5
USRX	110.50	23.13	US Robotics	92.25	2.75	3.1
USW	48.38	28.38	US West Inc.	36.00	1.25	3.6
XIRC	19.00	8.88	Xircom	10.88	0.63	6.1
XLGX	78.00	15.50	Xylogics Inc.	58.75	0.00	0.0
PCs and Workstations						**UP 2.18%**
AALR	9.63	4.13	Advanced Logic Research	7.38	0.38	5.4
AAPL	50.13	26.84	Apple Computer Inc. (L)	29.25	-1.38	-4.5
ASTA	19.13	7.50	AST Research Inc.	8.00	-0.50	-5.9
CPQ	56.75	31.13	Compaq Computer Corp.	47.13	0.25	0.5
DELL	49.38	19.75	Dell Computer Corp.	28.63	1.13	4.1
GATE	32.50	16.00	Gateway 2000 Inc.	26.50	0.75	2.9
HWP	96.63	50.13	Hewlett Packard Co.	86.63	3.13	3.7
MUEI	29.88	8.75	Micron International Inc.	10.38	0.13	1.2
NIPNY	75.13	45.13	NEC America	60.13	0.13	0.2
SGI	45.63	21.13	Silicon Graphics	28.63	1.38	5.0
SUNW	51.50	15.00	Sun Microsystems Inc.	47.00	4.75	11.2
Large Systems						**UP 2.92%**
AMH	13.63	6.75	Amdahl Corp. (L)	7.50	-0.06	-0.8
CNX	7.88	3.63	Convex Computer	4.75	0.00	0.0
CYR	900.00	14.63	Cray Research Inc. (H)	25.50	0.63	2.5
DGN	16.38	6.75	Data General Corp.	16.38	0.63	4.0
DEC	73.88	31.50	Digital Equipment Corp. (H)	72.75	1.50	2.1
IBM	114.63	70.25	IBM	109.25	4.50	4.3
MDCD	12.75	3.00	Meridian Data Inc.	12.25	1.38	12.6
NETF	7.75	4.25	NetFrame	5.38	-0.13	-2.3
SQNT	25.38	11.63	Sequent Computer Sys. (L)	11.75	-0.31	-2.6
SEQS	10.00	3.56	Sequoia Systems Inc.	4.75	0.50	11.8
SRA	36.13	23.00	Stratus Computer Inc.	25.63	-1.00	-3.8
TDM	18.75	9.25	Tandem Computers Inc. (L)	9.50	0.13	1.3
TRCD	6.25	2.00	TriCord Systems (L)	3.13	0.19	6.4
UIS	13.63	5.50	Unisys Corp.	7.38	0.38	5.4
Software						**UP 3.99%**
ADBE	74.25	28.50	Adobe Systems Inc.	36.13	-3.38	-8.5
AMSWA	8.75	2.75	American Software Inc.	4.88	-0.13	-2.5
APLX	34.25	6.75	Applix Inc.	34.25	11.25	48.9
ARSW	48.50	28.75	Arbor Software	41.25	7.50	22.2
ACAD	53.00	27.75	Autodesk Inc.	30.00	0.50	1.7
BACH	10.75	3.75	Bachman Info. Systems	9.13	-0.38	-3.9
BGSS	42.00	24.50	BGS Systems Inc.	36.50	1.25	3.5
BMCS	55.75	27.63	BMC Software Inc. (H)	55.00	5.00	10.0
BOOL	26.38	18.25	Boole and Babbage	23.00	1.63	7.6
BORL	20.63	6.63	Borland Int'l Inc.	19.25	1.75	10.0
CESH	3.94	1.38	CE Software	2.81	0.25	9.8
CYE	27.88	12.38	Cheyenne Software Inc.	20.25	0.25	1.3
COGNF	45.63	16.00	Cognos Inc.	41.13	2.63	6.8
CA	70.50	33.13	Computer Associates	68.88	7.00	11.3
CVN	15.50	4.63	Computervision Corp.	12.50	0.25	2.0
CPWR	19.00	15.50	Compuware Corp.	18.00	0.00	0.0
CSRE	27.25	9.88	Comshare Inc.	24.50	-0.25	-1.0
COSFF	19.50	8.38	Corel Corp.	11.38	1.50	15.2
DWTI	16.25	6.25	Dataware Technologies Inc.	7.50	0.00	0.0
DSLGF	24.25	14.13	Discreet Logic Inc.	27.50	3.75	15.8
FILE	58.63	29.88	Filenet Corp.	58.50	3.25	5.9
DDDDF	8.25	3.38	4th Dimension	4.50	0.25	5.9
FTPS	40.63	10.38	FTP Software Inc.	11.50	-1.06	-8.5
GSOF	26.00	7.50	Group I Software	7.75	0.25	3.3
GPTA	12.25	4.88	Gupta	5.88	-0.25	-4.1
HOGN	13.88	4.63	Hogan Systems Inc.	10.00	0.63	6.7
HYSW	28.38	14.38	Hyperion Software Corp.	14.38	-4.13	-22.3
IRIC	18.63	10.00	Information Resources	13.81	-0.44	-3.1
IFMX	34.38	15.50	Informix Corp.	30.88	0.25	0.8
INGR	19.25	9.88	Intergraph Corp.	19.13	0.88	4.8
LEAF	12.63	4.00	Interleaf Inc.	7.63	0.38	5.2
ISLI	26.25	8.75	Intersolv Inc.	10.00	-2.25	-18.4
INTU	89.25	29.63	Intuit Inc.	65.00	6.75	11.6
MGICF	11.50	3.63	Magic Software Enterprises	10.38	0.50	5.1
MANU	20.50	8.50	Manugistics Group Inc.	10.25	-0.75	-6.8
MAPS	40.00	10.00	MapInfo Corp.	13.25	1.00	8.2
MATH	7.38	2.00	MathSoft	6.25	-0.25	-3.8
MCAF	52.88	10.13	McAfee Associates	48.25	3.75	8.4
MENT	22.88	10.88	Mentor Graphics (L)	13.88	-0.69	-4.7
MIFGY	13.13	8.25	Micro Focus	9.50	0.63	7.0
MGXI	15.13	5.75	Micrografx Inc.	13.38	-0.13	-0.9
MSFT	109.25	58.25	Microsoft Corp.	93.25	2.75	3.0
ORCL	49.50	27.88	Oracle Corp. (H)	49.00	1.63	3.4
PMTC	72.56	35.75	Parametric Technology	64.13	3.63	6.0
PARQ	20.00	6.63	ParcPlace Systems Inc.	8.38	-0.50	-5.6
PSFT	47.75	15.25	PeopleSoft (H)	46.00	3.63	8.6
PTEC	16.13	6.13	Phoenix Technologies	13.88	0.75	5.7
PSQL	16.88	3.38	Platinum Software	4.38	-0.31	-6.7
PLAT	26.00	12.38	Platinum Technology (L)	14.88	2.25	17.8
PRGS	38.00	19.63	Progress Software Corp.	27.75	-0.25	-0.9
RNBO	26.75	15.13	Rainbow Technologies Inc.	22.50	0.75	3.4
ROSS	7.75	2.19	Ross Systems	2.75	0.00	0.0
SDTI	59.50	11.88	Security Dynamics Tech. (H)	57.75	5.00	9.5
SKEY	51.75	13.50	Softkey International Inc. (L)	16.38	2.25	15.9
SPCO	5.13	2.19	Software Publishing Corp.	2.88	0.38	15.0
SOTA	12.50	6.63	State of the Art	10.75	0.38	3.6
SSW	62.38	32.88	Sterling Software Inc.	59.38	2.38	4.2
SDRC	30.50	5.88	Struct. Dynamics Research	28.50	1.00	3.6
SYBS	47.50	19.88	Sybase Inc.	33.38	-0.13	-0.4
SYMC	33.25	9.88	Symantec Corp.	13.25	2.25	20.5
SNPS	38.50	22.25	SynOpsys	30.25	-0.88	-2.8
SSAX	30.63	11.38	System Software Assoc.	24.00	1.88	8.5
SYSF	18.13	7.00	Systemsoft Corp.	14.00	1.75	14.3
TRUV	10.13	3.63	Truevision Corp.	5.13	-0.25	-4.7
VIEW	15.13	8.38	ViewLogic Systems	10.63	0.00	0.0
VMRK	21.50	5.75	VMark Software Inc.	8.38	-0.50	-5.6
WALK	9.75	4.63	Walker Interactive Systems	8.25	-0.31	-3.6
WALL	55.50	13.00	Wall Data Inc.	15.38	0.38	2.5
WANG	19.50	11.13	Wang Laboratories Inc.	18.88	1.63	9.4
Internet						**OFF 7.59%**
AMER	46.25	13.38	America On-Line	45.00	3.00	7.1
NETC	91.50	19.00	Netcom On-Line	29.94	-7.06	-19.1
NSCP	174.00	45.75	Netscape Comm. Corp.	146.56	-10.44	-6.6
QDEK	39.50	3.38	Quarterdeck Corp.	16.63	-0.38	-2.2
SPYG	61.00	13.25	Spyglass Inc.	36.75	-3.50	-8.7
UUNT	98.75	21.75	UUNET Tech.	39.25	-7.50	-16.0
Semiconductors						**UP 2.84%**
AMD	39.25	16.13	Advanced Micro Devices	20.25	0.13	0.6
ADI	26.38	13.63	Analog Devices Inc.	23.50	1.25	5.6
CHPS	15.88	6.25	Chips and Technologies	9.00	-0.50	-5.3
CRUS	61.13	13.88	Cirrus Logic	22.38	0.63	2.9
CY	27.75	10.00	Cypress Semiconductor Corp.	14.25	0.38	2.7
INTC	78.38	34.50	Intel Corp.	56.75	1.75	3.2
LSI	62.50	21.00	LSI Logic Corp.	32.50	5.50	20.4
LSCC	43.00	21.13	Lattice Semiconductor	32.38	0.75	2.4
MCRL	32.50	12.50	Micrel Semiconductor Inc.	18.50	-1.00	-5.1
MU	94.75	21.88	Micron Technology	35.75	1.25	3.6
MOT	82.50	44.75	Motorola Inc.	55.75	2.50	4.7
NSM	33.63	14.88	National Semiconductor	17.50	-0.25	-1.4
SERA	28.75	8.50	Sierra Semiconductor	19.25	1.50	8.5
TXN	83.75	12.75	Texas Instruments	47.38	-0.63	-1.3
VLSI	39.13	12.13	VLSI Technology	14.94	0.44	3.0
WWTK	6.88	1.88	Weitek	2.63	-0.06	-2.3
WDC	22.13	13.13	Western Digital Corp.	18.75	-0.13	-0.7
XLNX	55.50	19.00	Xilinx	41.13	2.13	5.4
ZLG	54.13	28.50	Zilog Inc.	38.25	2.50	7.0
Peripherals and Subsystems						**OFF 2.04%**
APCC	25.88	7.88	American Power Conversion (L)	8.88	0.63	7.6
ADPT	48.38	25.75	Adaptec Inc.	44.00	0.50	1.1
BTEC	22.75	14.75	Banctec Inc.	18.75	0.00	0.0
CBEX	13.13	3.50	Cambex Corp.	6.63	-0.13	-1.9
CGN	7.25	2.13	Cognitronics Corp.	5.13	0.06	1.2
CNR	26.38	9.25	Conner Peripherals (H)	25.75	0.13	0.5
CREAF	14.13	5.88	Creative Technologies Inc.	8.19	0.19	2.3
RACE	13.13	3.63	Data Race Inc.	4.38	0.00	0.0
DTM	9.38	4.50	Dataram Corp.	6.63	0.38	6.0
EMC	27.38	13.00	EMC Corp.	18.38	-1.25	-6.4
EMLX	28.50	6.38	Emulex Corp.	11.25	2.63	30.4
ESCC	25.25	12.00	Evans and Sutherland	22.13	-0.88	-3.8
EXBT	19.25	10.00	Exabyte	14.00	-0.50	-3.4
IISLF	4.25	1.56	Intelligent Info. Systems	1.69	-0.06	-3.6
IOMG	18.00	1.63	Iomega Corp. (H)	13.50	-2.67	-16.5
IPLSA	7.88	2.50	IPL Systems Inc.	3.75	-0.13	-3.2
KMAG	37.50	11.13	Komag Inc.	29.25	1.13	4.0
MXTR	7.25	3.88	Maxtor Corp.	6.63	0.00	0.0
MLIS	10.25	2.75	Micropolis Corp.	3.00	-0.25	-7.7
MTSI	37.75	11.25	Micro Touch Systems Inc.	13.13	0.38	2.9
PEAK	34.75	16.75	Peak Technology Group	19.25	-11.25	-36.9
PNCL	19.75	5.88	Pinnacle Micro Inc.	14.00	-1.75	-11.1
PTNX	38.75	13.50	Printronix Inc.	20.38	-0.63	-3.0
AQM	8.25	3.25	QMS Inc.	5.13	-0.25	-4.7
QNTM	28.50	13.75	Quantum Corp.	18.00	-0.38	-2.0
RDUS	14.38	1.63	Radius Inc. (L)	1.63	-0.31	-16.1
SEG	60.00	23.63	Seagate Technology (H)	58.50	0.00	0.0
STK	30.13	17.88	Storage Technology	26.75	-1.13	-4.0
TEK	61.88	31.38	Tektronix Inc.	45.25	0.38	0.8
XRX	144.63	103.50	Xerox Corp.	124.88	3.13	2.6
Services						**UP 1.06%**
AMSY	23.25	11.38	American Mgmt. Systems (H)	21.88	-0.75	-3.3
ANLY	33.00	19.81	Analysts Int'l	29.75	0.50	1.7
AUD	41.25	29.25	Auto Data Processing	40.50	1.88	4.9
CATP	61.00	23.50	Cambridge Tech. Partners	50.00	-5.00	-9.1
CEM	47.50	28.75	Ceridian Corp.	44.50	1.25	2.9
CDO	23.75	16.13	Comdisco Inc.	21.75	0.50	2.4
CHRZ	27.50	6.38	Computer Horizons	27.50	1.50	5.8
CSC	79.38	46.50	Computer Sciences	77.75	3.25	4.4
TSK	22.00	8.50	Computer Task Group	18.25	-0.13	-0.7
CPU	44.38	17.00	CompUSA Inc.	35.88	0.63	1.8
CDAT	21.38	6.25	Control Data Systems Inc.	18.13	-0.63	-3.3
EGGS	14.25	5.00	Egghead Discount Software	6.69	1.00	17.6
GME	56.63	37.50	General Motors E (EDS) (H)	56.38	1.75	3.2
INAC	16.25	7.88	Inacom Corp. (H)	15.63	0.38	2.5
INEL	14.63	4.56	Intelligent Electronics (L)	4.56	-0.69	-13.1
MSEL	8.38	3.50	Merisel	3.50	-0.38	-9.7
MICA	15.00	7.25	Micorage Inc.	9.63	1.13	13.2
PAYX	55.00	25.88	Paychex	53.25	1.25	2.4
PMS	54.25	40.75	Policy Management Sys.	48.00	1.00	2.1
REY	39.63	23.63	Reynolds and Reynolds	38.13	-0.25	-0.7
SEIC	24.50	16.75	SEI Corp.	22.00	-0.13	-0.6
SMED	57.63	32.00	Shared Medical Systems	56.38	0.50	0.9
SHKIF	13.13	4.75	SHL Systemhouse	12.63	0.00	0.0
SSPE	26.50	14.88	Software Spectrum Inc.	19.00	-0.25	-1.3
SNDT	32.50	17.88	Sungard Data Systems	30.75	0.75	2.5

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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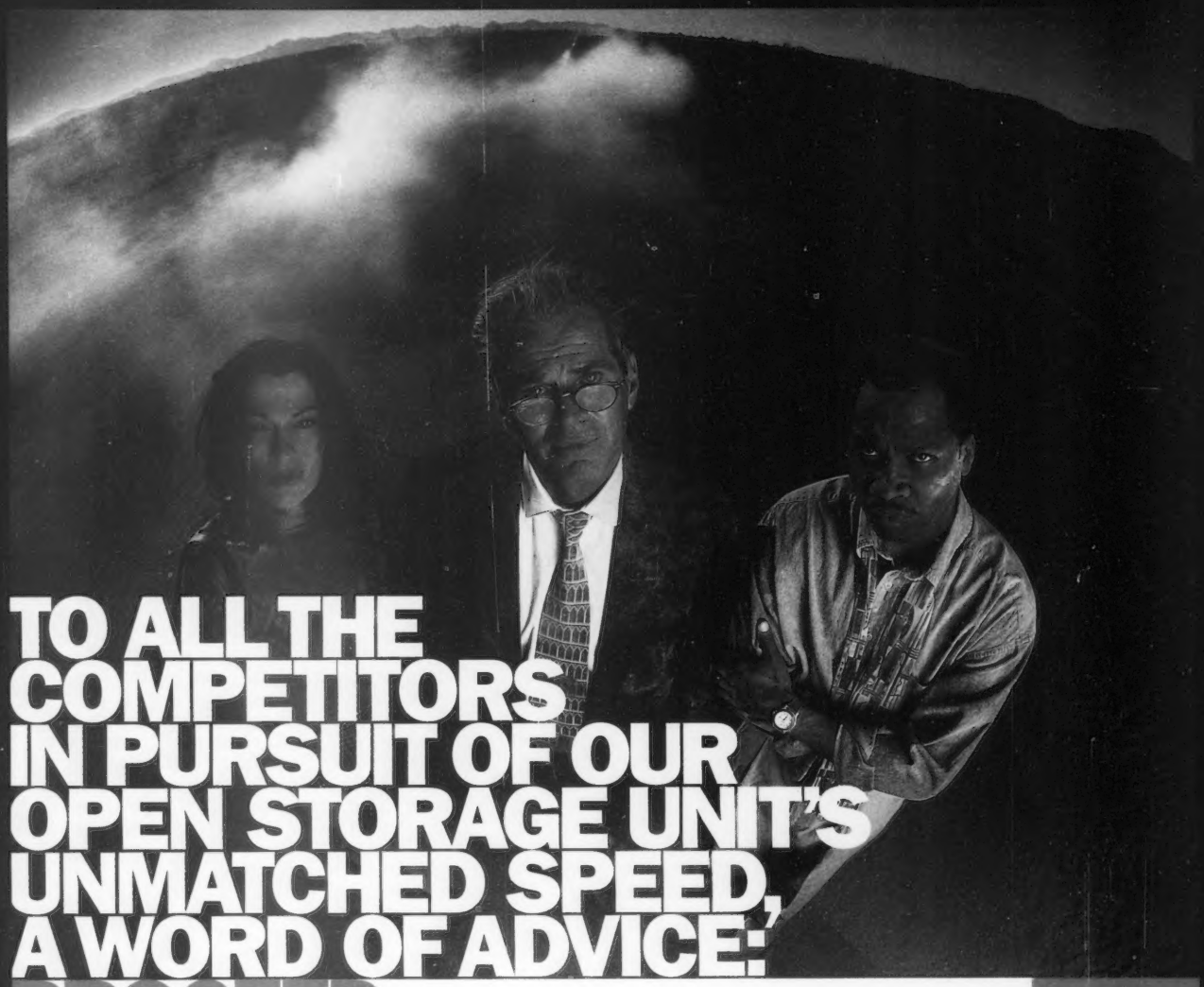

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Survey: Windows 95 vs. Windows NT

CONTINUED FROM COVER 1

that many corporations are dragging their feet about migrating to Windows 95 may be wrong. Of those surveyed, 38% said they already have begun the migration to Windows 95, and another 27% said they will begin the move within the next year.

In fact, the new year is likely to push reticent companies off the fence, one way or another.

"In January, corporations started getting seriously involved in this [Windows 95 vs. NT] debate," said Andrew Percy, chief technology officer at Edge Information Systems, Inc., a major network integrator in San Jose, Calif.

The survey focused on 100 IS managers who recommend, specify, approve or authorize the purchase of desktop operating systems.

For roughly 20% of those managers, Windows 3.1 is meeting their needs well enough that migration to Windows 95 or NT isn't a consideration.

The majority of those surveyed plan to deploy a mix of all three eventually.

Allure of NT

"It all depends on what [users] are doing," said Randy Dugger, director of IS at Sequus Pharmaceuticals, Inc. in Menlo Park, Calif.

Most of his users are moving to Windows 95, but a few, including the company's chief financial officer, have adopted NT because of its "industrial-strength security."

Interestingly, IS managers gave a slightly better grade overall to NT, with a B+, while Windows 95 received a B-. And only 37% of the IS managers said they personally would prefer to move to Windows 95.

That may demonstrate a strong end-user influence on the decision-making process or the fact that 80% of those surveyed consider Windows 95 to be a transitional operating system on the way to NT.

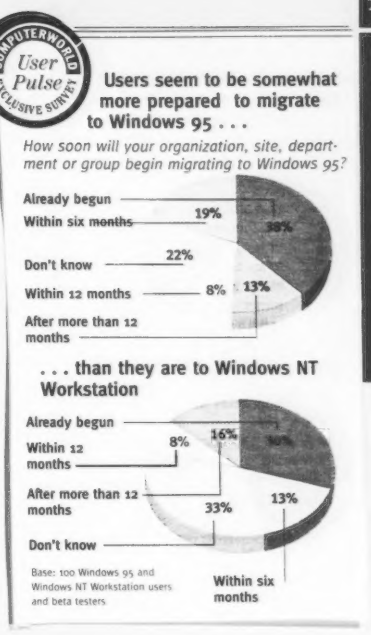
Indeed, 38% cited end-user demand as the major reason why they would deploy Windows 95, and another 38% said its ease of use was the major factor.

For those who aren't taking the Windows 95 road, technical issues with the new system turned out to be the main reason, according to the survey. The release this month of the first Service Pack for Windows 95, which will contain bug fixes and some new device drivers and functions, may help to allay those concerns [CW, Jan. 29].

"I would tell people to go to NT, and don't even bother with Windows 95 unless you're not concerned about security or you have a lot of older machines," according to Dennis Martin, president of the Rocky Mountain Windows NT User Group in Denver.

Martin is the Windows development manager at Distribution Resources Co., a vendor of distribution systems in Englewood, Colo.

Windows NT catches on as a development environment. See page 45.



Who gets what

Computerworld's survey found general agreement among corporate IS managers as to which of their users would be better off running Windows 95 vs. Windows NT Workstation — with some exceptions.

Predictably, the IS managers interviewed said the best candidates for Windows 95 migration included general office and secretarial staff and those users who need basic productivity applications.

Conversely, the ideal user candidates for Windows NT Workstation include those who run high-end applications in the multitasking, client/server and computer-aided design and manufacturing realms and users who want to run pure 32-bit applications.

NT Workstation is a true 32-bit operating system, and Windows 95 is a hybrid system comprised of 32-bit and 16-bit code.

— *Stuart J. Johnston*

NT still on backburner

Although the overwhelming majority of IS managers surveyed by *Computerworld* said they believe Windows 95 is merely a transitional operating system on the way to Windows NT, many don't plan to deploy NT on the desktop.

Only 20% of the 100 respondents said they have increased their commitment to NT since Windows 95's debut last August.

Cost and ease of use were cited as the primary obstacles to migrating to NT. But that could change given the following recent announcements:

- Microsoft late last month said it will bring the costs to deploy Windows NT Workstation more in line with Windows 95.
- Intel Corp. last week said it will drive down the price of its 120-MHz Pentium chips (see story, page 160). Windows 95 runs applications effectively in 12M to 16M bytes of RAM, but NT still requires more — 20M to 24M bytes. Many corporations are buying PCs with enough RAM to run NT as their minimum configuration, but that doesn't account for the millions of PCs already in place.
- The release this month of the beta of Windows NT 4.0, which gives NT the Windows 95 user interface. A successful release of NT 4.0 would make 43% of IS managers more likely to move to NT on the desktop, according to the survey. But the NT 4.0 release, due by midyear, won't give NT support for Plug and Play hardware. Nor will it make up for the lack of device drivers for second- and third-tier hardware that Windows 95 has, some IS managers said.

— *Stuart J. Johnston*

Kmart

CONTINUED FROM COVER 1

as Carlson's successor last summer, abruptly left just before Christmas. Neither could be reached last week for comment.

The latest CIO is Don Norman, who says Kmart's troubled financial status "has not had a bearing on the direction that I'm setting here."

Yet Kmart's management changes and financial problems have led the firm to delay some projects and outsource other functions, several sources said. Two weeks ago, for example, Kmart turned its payroll systems processing over to Ceridian Corp. in Minneapolis. Norman declined to specify Kmart's anticipated cost savings.

Kmart recently put the brakes on a plan to replace its satellite communications network with a system that is based on frame relay. Sources close to the company said its communications network costs $1 million per month to support.

Frame relay typically is 10% to 20% cheaper than satellite networks, and even more in some instances, said Michael Smith, a communications analyst at Datapro Information Services Group in Delran, N.J.

Kmart is continuing to pilot unspecified frame-relay technologies at a handful of stores but has no immediate plans for a full rollout, Norman confirmed. The frame-relay project is on hold until the retailer can "cost-justify" it, he added.

In addition, the recent postponement of a planned upgrade for the Kmart Information Network (KIN-II) system from a Unisys Corp. Unix environment to Microsoft Corp. Windows NT-based systems would have required a "significant investment," Norman said. Besides, the Unisys U6000/65 machines that are used to run KIN-II don't run NT.

KIN-II, which supports most of the firm's core processes and back-office functions, was still on track for a Windows NT upgrade as recently as four months ago, said Joel W. Wyman Jr., managing partner at Isys Consulting Group Ltd. The Huntington, N.Y.-based retail information technology consultancy had been helping Kmart assess its electronic data interchange strategy.

Norman said the KIN-II system still has "both the present and future capacity to support [Kmart's] business." He dismissed suggestions that Kmart is trying to play technological catch-up to rival Wal-Mart.

Gaffney goes

Paul Gaffney, Kmart's IS chief architect, left the retailer last September and has since joined Office Depot in Delray Beach, Fla., as vice president of MIS development.

Loyalty factor

But perhaps it should be. A recent survey of Wal-Mart customers concluded that 49% of its patrons drive past a Kmart to shop at Wal-Mart.

In addition, only 19% of Kmart shoppers said they were "loyal" to the chain. Wal-Mart, meanwhile, enjoys 46% customer loyalty, according to published reports.

Retail veterans said Wal-Mart's success can be attributed largely to its savvy IS strategy.

Wal-Mart has what is believed to be the world's largest commercial data warehouse, an NCR Corp. Teradata machine that contains nearly 3T bytes of customer information. The retailer crunches that data to analyze customer shopping habits, advertising success rates and other strategic information.

Kmart, meanwhile, has struggled to transition its legacy systems, such as its cash reconciliation systems, to client/server environments, Wyman and other industry veterans said.

Go Whitehouse

THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION.

Apple: A name with cachet, but who's to pay?

Charles Babcock

Although talks continue, the Snapple merger — Sun Microsystems and Apple — is likely to happen later rather than sooner, and it's still hard to tell what Apple's fate will be.

The Apple brand name still has cachet, and the Apple customer base is the only mass market for microprocessors that's up for grabs. Silicon Graphics, Digital and Sun must wish their chips could become the basis for a future Macintosh, instead of the IBM/Motorola PowerPC chip. The larger the customer base, the more likely a company will be able to bear its ongoing chip development costs. Once Apple's stock price falls far enough, one of these others is likely to offer a competing bid.

How long can IBM and Motorola sit on the sidelines while Apple is the volume distributor of the PowerPC? If Apple is melded into Sun, what would happen to the PowerPC? Sun might commit to keeping a line of Macintoshes based on it. But it would almost surely start to make noises about high-end, graphics-oriented Macintoshes based on its UltraSPARC — to better compete with Silicon Graphics.

On the other hand, if Sun got a low-end, Internet client off the ground, it would likely borrow the Macintosh interface and dilute some of the Macintosh's value.

Sun is doing well at the moment, but Apple is a huge bite for it to swallow, and it won't pay a premium for Apple stock. How much would you pay for a company that's losing money and whose $300 million debt was just declared to be of junk bond status?

Under CEO John Sculley, Apple shifted from the desktop and end-user interface toward projects such as the Newton MessagePad in an effort to restore its initiative. There was no real desktop strategy to fall back on when this move failed.

The company's inability to focus on lessons that need to be learned reminds me of a bit of history. Sir Isaac Newton was hit on the head with an apple and discovered the law of gravity. Apple was hit on the head with the Newton, but never discovered the law of profitability.

Apple was hit on the head with the Newton and never discovered the law of profitability.

* * *

Client/server continues to be a popular catchphrase. But warning flags are going up; good intentions are far from enough to make client/server a success.

Gartner Group's Igor Stenmark recently told attendees at a San Francisco seminar that IS organizations are required to spend 2½ times as much on systems management for client/server as they would for the mainframe. This amounted to $2.5 billion last year and will top $9.5 billion by the year 2000, Stenmark said.

These figures are estimates, but if they are anywhere near correct, IS spending on systems management will soon top its spending on database management.

In his report card for client/server, Stenmark gave the technology a D for lowering costs (i.e., it doesn't).

He gave client/server between a D and a B for availability.

And he gave it a C for scalability and noted somewhat sarcastically that client/server systems that are called enterprise systems tend to be in organizations where a span of 50 PCs qualifies as an enterprise system.

So why does anybody move to client/server? I think there are some unmeasured productivity gains in how people work. Key individuals make very good use of client/server when they are given access to corporate information and raw computing power. But IS is mainly trying to make good on the big organizational investment in PCs and resulting end-user expectations. The road has been more rocky than anticipated.

Despite heavy investment, these systems don't scale well. As they are "rolled out across the enterprise, most become unmanageable and then get simplified. Most first-generation client/server systems will be scrapped," Stenmark predicted.

To my mind, client/server remains a rather vaguely defined goal instead of a basic architecture that you can implement across your organization. If IS doesn't provide a lot of definition, you probably won't be able to implement early client/server systems organizationwide, much as Stenmark says.

* * *

The Palm Computing Division of U.S. Robotics showed Pilot, a shirtpocket computer, at Demo '96 last week. It comes with a docking cradle connected by a serial cable to your desktop PC. Press a button, and data between the two is synchronized.

Babcock is *Computerworld*'s technical editor. His Internet address is charles_babcock@cw.com.

Inside Lines

Who's on first at Apple?

As a cavalcade of press reports spread the news last week of Apple CEO and President Michael Spindler's ouster, anointing as his replacement National Semiconductor CEO Gil Amelio, Apple stoically declined comment. And while National Semi was loudly trumpeting the resignation of its CEO, it managed to draw a blank when conjecturing what Amelio would do next. On the other hand, there was Apple founder Steve Wozniak quipping that "I wouldn't want that job. But then again, I would with as good a golden parachute as Spindler had."

On the fast track

The only thing moving faster than internetworking vendors to Fast Ethernet technology might be David Schwimmer to Jennifer Anniston: Ross and Rachel on TV's *Friends*. The latest case is switching hub vendor Alantec Corp. in Sunnyvale, Calif., which will announce Fast Ethernet modules for its high-end PowerHub 7000 and 8000 LAN switching hubs this week.

Don't go away mad, OK?

IBM just added an on-line mainframe catalog to its System/390 Web site, and the second link on the catalog's main menu promises to take big iron browsers to a "Current promotions" page. Alas, those who click on the link are being treated to some pretty thin gruel. They get a screen with this deflating message: "Sorry, there are currently no product promotions." Trying to not completely dash hopes, the screen suggests that mainframe mavens "check this space regularly for specials."

Family feud

IBM's mainframe and DB2 database units are usually the kissing-est of cousins, but this week they'll be doing their Hatfield and McCoy imitations. The mainframe folks will hold hands with Oracle on Wednesday and jointly announce a parallel version of Oracle7 for MVS [CW, Jan. 22]. Not content to grin and bear such philandering, the DB2 people are fighting back by making users who chose DB2 over Oracle available to the press today and tomorrow. And here we thought Lou Gerstner had made IBM one big happy family again.

The 5th Wave by Rich Tennant

Take a peek

Look for IBM to deliver SystemView integrated network and systems management tools for a Windows NT platform in about three months, according to a project leader. But don't expect much. This implementation based on NetFinity workgroup software sticks to entry-level needs, like the OS/2 version launched to yawns last year.

Red-letter day

Rod Fournier, the Kmart webmaster who was dismissed by the retailer last November after violating the firm's standards of business conduct policy by adding a hypertext link to his personal site [CW, Nov. 20], was contacted by a Kmart attorney last week about his (now former) "Kmart Sucks" home page on the Web (http://ic.net/~rod/kmart.htm). Fournier was ordered to stop using the red block letter K on his Web site and to remove the Kmart Sucks page entirely. Fournier complied by changing the logo and using a blue letter K in place of the red letter. He also changed the Kmart Sucks page to "Mart Sucks." Will it be enough? Stay tuned. . . .

Sometimes you need a little help from above. StrataCom, Inc. must be hoping for a little divine intervention to help sell its Asynchronous Transfer Mode (ATM) networking equipment. At its press conference at ComNet '96 last week, one of the company's marketing veeps said StrataCom would prove ATM naysayers wrong. Then 10 gospel singers filed into the room and belted out "We Shall Overcome." Our reporter is still trying to recover from his hearing loss. To get in touch with Computerworld *about news items or tips, call our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News Editor Maryfran Johnson can be reached by phone at (508) 820-8179 or via the Internet at maryfran_johnson@cw.com.*

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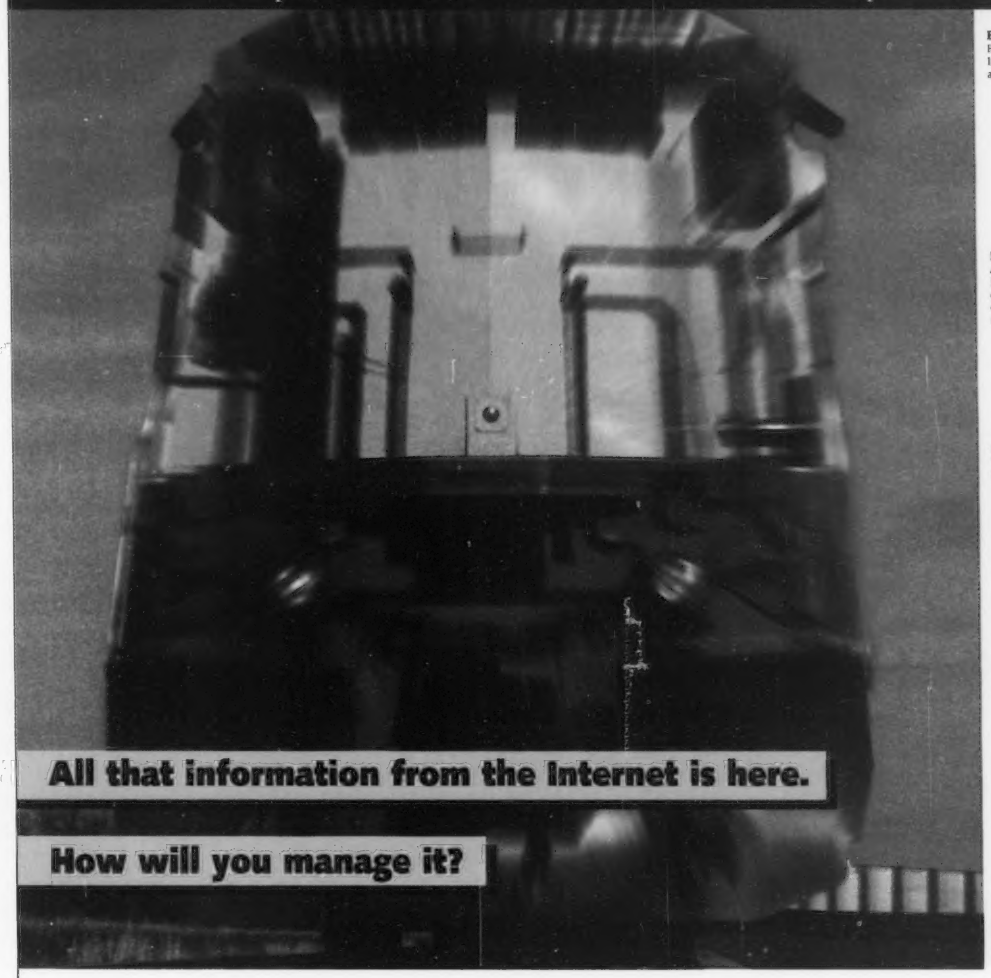

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